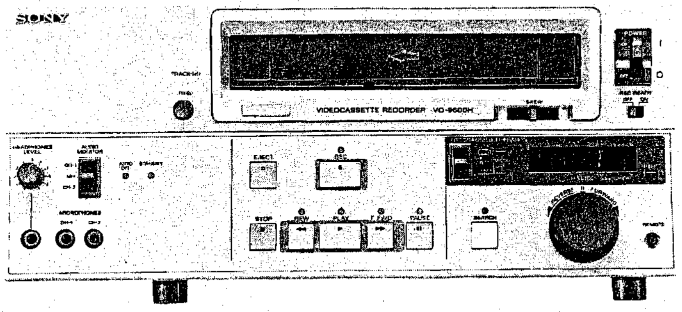
U-matic SP

VIDEOCASSETTE RECORDER

VO-9600H


SONY
TRACKING
POWER
OFF
REC INHIBIT
OFF ON
VIDEOCASSETTE RECORDER VO-9600H
HEADPHONES LEVEL
AUDIO MONITOR
CH-1
MIX
CH-2
AUTO OFF
STANDBY
MICROPHONES
CH-1
CH-2
EJECT
REC
STOP
REW
PLAY
F FWD
PAUSE
SEARCH
REVERSE
FORWARD
REMOTE

SONY®

SERVICE MANUAL

ADVARSEL!

Lithiumbatteri-Eksplosionsfare Udskiftning
ma kun foretages af en sagkyndig, og som
beskrevet i servicemanualen.

LITIUMBATTERI!

Bor endast bytas av servicepersonal.
Explosinsfara vid felakting hantering.

LITHIUM BATTERY!

SHOULD ONLY BE CHANGED BY TECHNICAL PARSONNEL.
THERE IS A RISK OF EXPLOSION AT A WRONG HANDLING.

"Batteriet ma kun udskiftes med et batteri af samme fabrikat og type."

Because of the risk for explosion the battery must be replaced with the same type and manufacture.

SPECIFICATIONS

System

Video recording system	Rotary 2-head helical scan
Luminance	FM recording
Video signal system	525/60(EIA standards), 625/50(CCIR standards), 1023/60, 1049/60, 1125/60, 1249/50 (scan lines/field frequency)

Video

Inputs	VIDEO IN (BNC type)×2 for a bridging connection 1.0 Vp-p±0.3 Vp-p, 75 ohms, unbalanced, sync negative
Outputs	VIDEO OUT 1,2,3(BNC type)×1 each 1.0 Vp-p±0.2 Vp-p, 75 ohms, unbalanced, sync negative
Horizontal resolution	525/60, 625/50 : 480 TV lines 1023/60, 1049/60, 1249/50 : 240 TV lines 1125/60 : 220 TV lines (Aspect ratio 4:3)
S/N	525/60 : more than 45dB 625/50 : more than 42dB
Recording level control	Automatic

Audio

Inputs	AUDIO IN CH-1/L, CH-2/R(phono jack)×1 each −10dB, 47 k ohms, unbalanced MICROPHONES CH-1/L, CH-2/R(phone jack)×1 each −60 dB, 3 k ohms, unbalanced
Outputs	AUDIO OUT CH-1/L, CH-2/R(phono jack)×1 each −5 dB(at 47 k ohm load), unbalanced HEADPHONES (stereo phone jack) For 8-ohm headphones Level adjustable(from −26 to −46 dB)
S/N	48 dB (both channel 1 and 2 at 3% distortion)
Frequency response	50 to 15,000Hz(both audio channel 1 and 2)
Recording level control	Limiter system

Other functions

Memory backup of programmed operation	3 years from shipment
Pause	A still picture is obtained with long pause function
Search	Still, 1/30 to 5 times normal speed in both forward and reverse directions With RM-580 : picture search with 8 times normal speed (both KSP and KSP-S tapes)
Tracking control	Possible
Skew control	Possible
Dropout compensator	Built-in
REC CONT input	Relay contact input Shorted: The unit continues to record Opened: The unit is set to the REC PAUSE mode.
REC READY	The unit is set to the REC PAUSE mode automatically when the power is turned on. Switching between ON and OFF is possible.

Tape transport

Tape speed	95.3mm/sec.
Recording and playback time	Approx.60 minutes(with KSP-60)
Fast forward and rewind time	Within 4 minutes (with KSP-60)
Wow and flutter	0.23%p-p (DIN)
Tape compatibility	U-matic video cassette tapes
Usable tapes	KSP, KSP-S tapes

General

Power requirements	120 V AC ±10%, 50/60Hz ±10%
Power consumption	70 W (current consumption: 0.8A) (with the RM-580)
Operating position	Horizontal
Storage temperature	−20°C to +60°C (−4°F to +140°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	424 × 192 × 545 mm (w/h/d) (16 3/4 × 7 5/8 × 21 1/2 inches) including projecting parts and controls

Optional accessories

RM-770 remote control unit (for REMOTE connector)
RM-580 remote control unit (for 33-pin interface)
KC-1C cleaning cassette tape
RMM-507 rack mount kit

The VO-9600H can be mounted into a standard 19-inch rack. When your unit is to be mounted in a rack, consult your Sony dealer.

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SECTION 1
GENERAL DESCRIPTION

1-1. FEATURES

High-quality picture with a new recording/playback system

Recording and playback using the system designed especially for the recording/ playback of X-ray pictures(monochrome pictures) and U-matic SP system cassette tapes(U-matic SP tapes), provides clearer and sharper pictures than before.

REC CONT function

External control of the record function is possible. Recordings are controlled in accordance with the operation of the X-ray irradiation.

REC READY function

This makes the unit set to the REC PAUSE mode automatically when the power is turned on.

Automatic control of video recording level

The automatic gain control (AGC) circuit maintains the proper video level assuring optimum video recording.

Search operation

Governed by the search dial, playback pictures can be viewed at various speeds from $^1/_{30}$ times to 5 times normal speed as well as in a still mode.
As the playback can be performed in both forward and reverse directions, any desired scene can be easily found.

Programmed operation

Programmed operation allows you to easily locate a desired point on a tape and also to repeatedly play back a desired portion.

LED time counter

The time counter reads out the CTL signals recorded on a tape and the LEDs indicate the tape running time in seconds and minutes. These are useful to check the recording time of a material and the remaining time of a tape.

Loop-through output

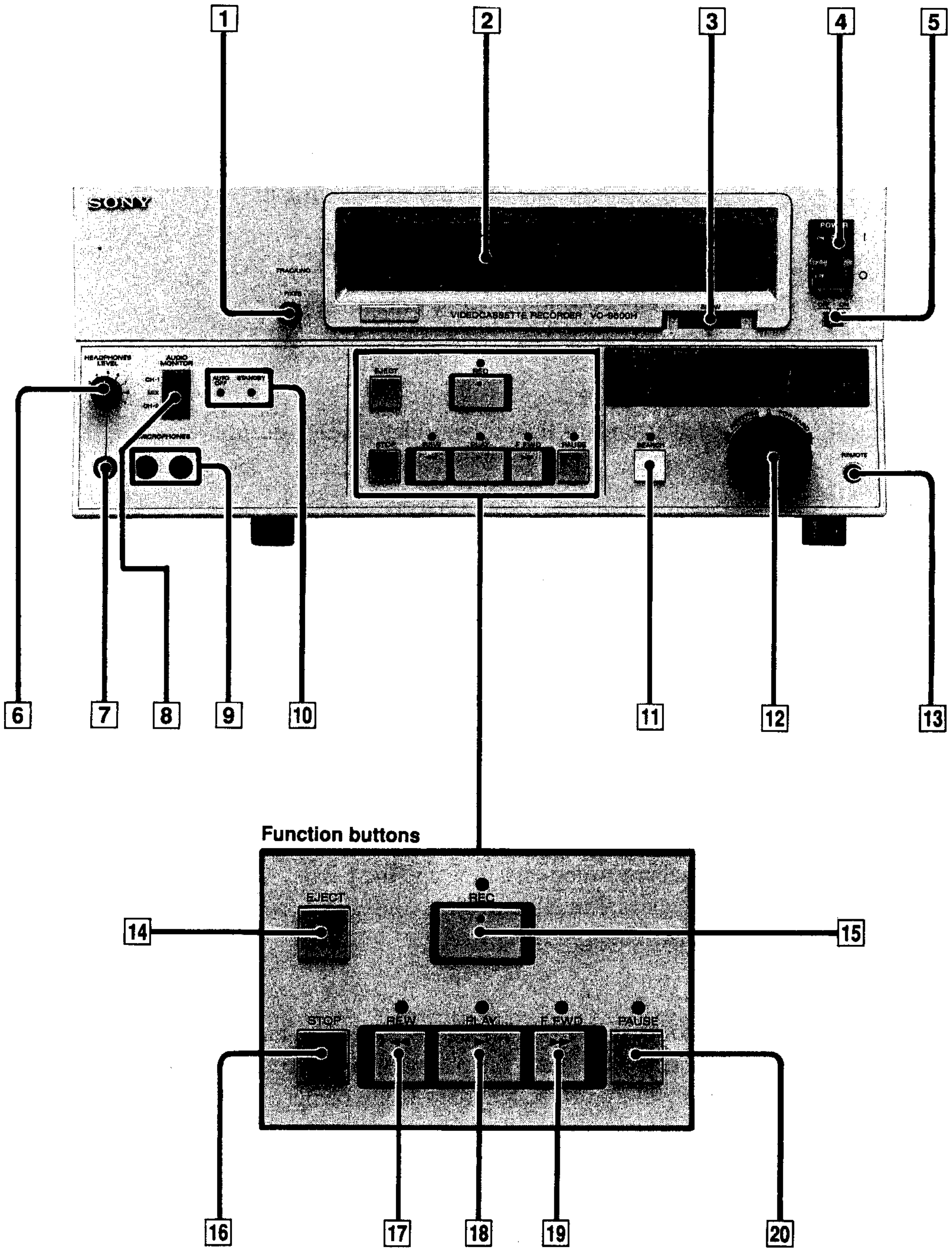
When a playback monitor is connected to the VIDEO OUT connector on the rear panel, the video signal input is output unchanged. Thus, the picture keeps good resolution (except during playback), and picture can be recorded while being monitored.

Selectable scanning system

SYSTEM SELECT switches make possible the recording and playback of pictures with scanning rates such as 525/60Hz, 625/50Hz, 1023/60Hz, 1049/60Hz, 1125/ 60Hz and 1249/50Hz in accordance with the signal source.

1-2. FUNCTION OF PARTS AND CONTROLS

(FRONT PANEL)


1
2
3
4
5
SONY
TRACKING
VIDEOCASSETTE RECORDER
POWER
HEADPHONES LEVEL
AUDIO MONITOR
CH-1
MIX
CH-2
AUTO OFF
STANDBY
MICROPHONES
SEARCH
REMOTE
6
7
8
9
10
11
12
13
Function buttons
EJECT
REC
14
15
STOP
REW
PLAY
F.FWD
PAUSE
16
17
18
19
20

1 TRACKING control

Normally set this control at the center FIXED position. Should noise, snow or streaks appear in a playback picture recorded on another machine, turn this control so that the best possible picture is obtained.

- Do not move the control from the center FIXED position while recording.

2 Cassette compartment

3 SKEW lever

Normally set this lever at the center position. When "hooking" distortion appears in the upper part of a playback picture, slide this lever to the right or left to obtain a normal picture.

4 POWER switch

5 REC READY switch

When this switch is set to ON, with a cassette tape inserted, the unit will be set to the REC PAUSE mode automatically when the power is turned on.
(Using this function together with the REC CONT function (page 13) makes it possible to record without any direct operation of the recorder.)

6 HEADPHONES LEVEL control

7 HEADPHONES connector (stereo phone jack)

8 AUDIO MONITOR switch

Select the sound to be monitored through headphones.

9 MICROPHONES CH-1 and CH-2 connectors (phone jacks)

10 Indicator section

AUTO OFF	Lights at power-on when moisture is condensed inside the unit. While this indicator is lit, any cassette cannot be loaded.
STANDBY	Lights while a tape is being threaded from or unthreaded to the cassette inside the unit.

11 SEARCH button/lamp

Press to engage the search dial. The lamp will light.

12 Search dial

By turning this dial with the SEARCH button depressed, the playback speed can be varied from 1/30 to 5(1/30, 1/10, 1/5, 1/2, 1, 2, and 5) times normal speed. Clockwise rotation (to FORWARD) makes the tape run forwards and counterclockwise rotation (to REVERSE) makes it run backwards. At the center "0" position, the picture will be still.

13 REMOTE connector(special minijack)

Accepts an optional RM-770 remote control unit. Recording, playback, fast forward, rewind and search (with 5 times speed) operations can be remotely controlled.

Function buttons

14 EJECT ⏏ button

Press to eject the video cassette.

15 REC ● (recording) button/lamp

For recording, press this button simultaneously with the PLAY ▶ button.

16 STOP ■ button

Press to stop the operation of the unit.

17 REW ◀◀ (rewind) button/lamp

Press to rewind the tape.

18 PLAY ▶ (playback) button/lamp

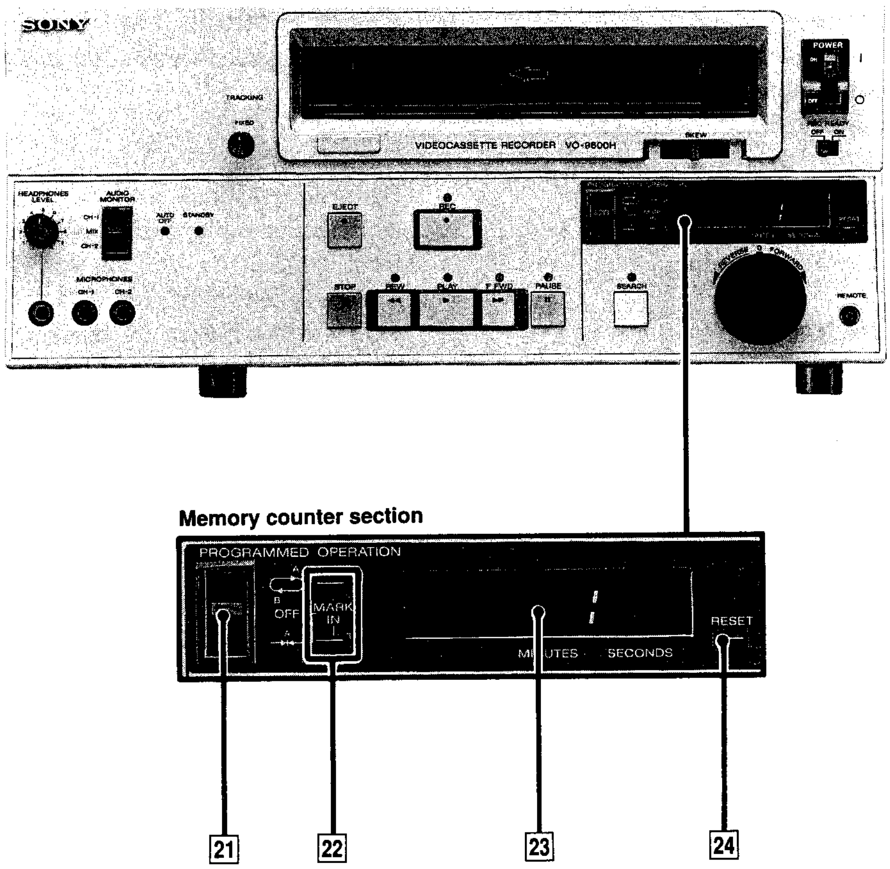
Press to play the tape back. Simultaneously pressing this button with the REC ● button sets the unit in the record mode.

19 F FWD ▶▶ (fast forward) button/lamp

Press to advance the tape rapidly.

20 PAUSE ❚❚ button/lamp

Press to stop the tape momentarily. To start the tape, press again. When this button is pressed during playback, a still picture will be obtained. If the PLAY ▶, F FWD ▶▶, REW ◀◀ or SEARCH button is pressed during the pause mode, the pause mode will be released and the tape will run in the mode designated by the button pressed.


SONY
TRACKING
VIDEOCASSETTE RECORDER VO-9600H
SKEW
POWER
HEADPHONES LEVEL
AUDIO MONITOR
CH-1
MIX
CH-2
MICROPHONES
EJECT
REC
STOP
REW
PLAY
F FWD
PAUSE
SEARCH
REVERSE
FORWARD
REMOTE
Memory counter section
PROGRAMMED OPERATION
A
B
OFF
MARK IN
MINUTES
SECONDS
RESET
21
22
23
24

MEMORY COUNTER SECTION

21 PROGRAMMED OPERATION switch

⟲	For repeatedly playing a particular portion or for checking the points memorized by the MARK IN A and B buttons.
OFF	For normal operation without using any programmed operation. (When the unit is to be controlled from a remote control unit connected to the REMOTE connector, be sure to set this switch to OFF.) Or for memorizing points on the MARK IN A and B buttons for a programmed operation.
→|←	For locating a point memorized with the MARK IN A button. * If no point is memorized, the tape stops at the point indicated by "0" on the time counter.

22 MARK IN A and B buttons

Press to memorize the time counter value at that point. You can memorize only one point on each button. If the button is pressed several times, only the last point will be memorized.

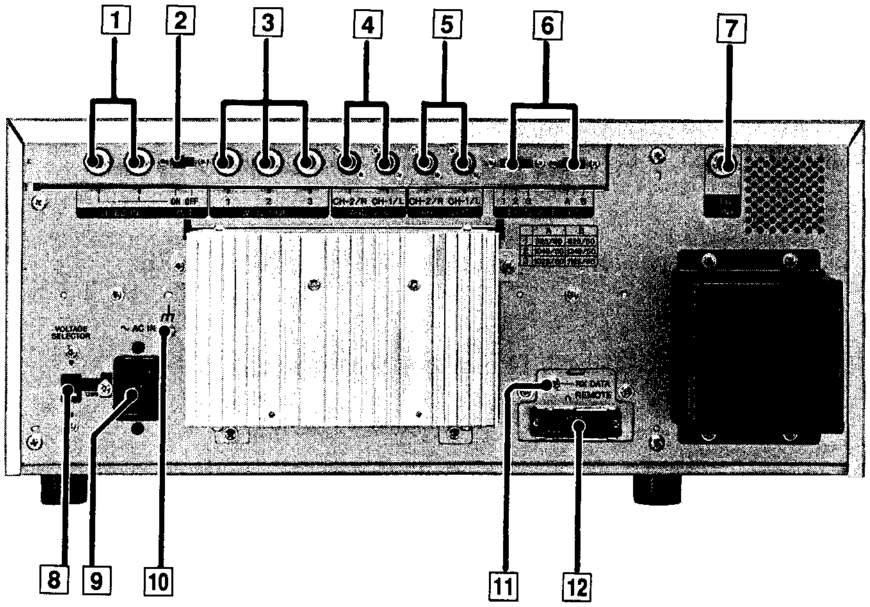
23 Time counter

24 RESET button

This button has the following three functions.

- Clearing the time counter indication
  The time counter indication will be set to "0" when this button is pressed.
- Clearing the memories on the MARK IN A and B buttons
  When the PROGRAMMED OPERATION switch is set at OFF or →|← , the points memorized by the MARK IN A and B buttons will be cleared and "0" will be memorized on both buttons, when the RESET button is pressed.
- Displaying the rotation time of the head drum.
  When this button is kept pressed for more than 2 seconds with the PROGRAMMED OPERATION switch set at ⟲ , the duration of the head drum rotation will be indicated in fifties of hours on the time counter.

(REAR PANEL)



1 VIDEO IN connectors (BNC type)

A bridging connection is possible. For this connection, be sure to set 75-ohm termination switch 2 to OFF.

2 75-ohm termination switch

Use to terminate the video signal supplied to the VIDEO IN connector.

ON	When one VIDEO IN connector is used for the incoming signal and the other is left open.
OFF	For a bridging connection (One VIDEO IN connector is used for the incoming signal while the other is used as the loop-through output.)

3 VIDEO OUT 1, 2 and 3 connectors (BNC type)

4 AUDIO IN CH-2/R and CH-1/L connectors (phono jack)

5 AUDIO OUT CH-2/R and CH-1/L connectors (phono jack)

6 SYSTEM SELECT switches

Select the correct scanning system from 525/60Hz, 625/50Hz, 1023/60Hz, 1049/60Hz, 1125/60Hz and 1249/50Hz in accordance with your signal source.

7 REC CONT connector (BNC type)

Input connector which makes external control of the record function possible. If this is connected to a foot switch or some other X-ray irradiation button, the switch controls the mode between REC and REC PAUSE externally. (This will function only when a cassette tape is inserted.)

Shorted	: The unit continues to record. (None of the key operations are possible but the EJECT button.)
Opened	: The unit is set to the REC PAUSE mode. (Any key operation is possible.)

8 VOLTAGE SELECTOR

This model is preset to 120 V AC at the factory.

9 AC IN connector

Accepts the AC power cord.

10 Ground terminal

11 RX DATA connector (minijack)

12 REMOTE connector (33-pin)

Connect an optional editing control unit or remote control unit to remotely control the recorder.

- Before connecting a remote control cable, check whether the connector is male or female
- A 20-pin connector can also be connected without using any plug adaptor.

1-3. NOTES ON VIDEO CASSETTE

Cassette tape for use

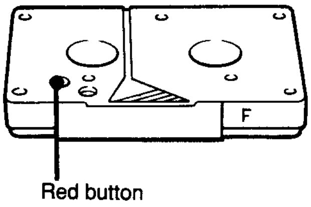
To make the most of the high quality of the new system, use SP series U-matic tape. When using a conventional KCA or KCS series tape, the new system may not function normally.

This unit cannot playback cassette tapes recorded in the conventional NTSC/ PAL SP system.

Conventional NTSC/PAL SP system U-matic VTRs cannot playback cassette tapes recorded on this unit.

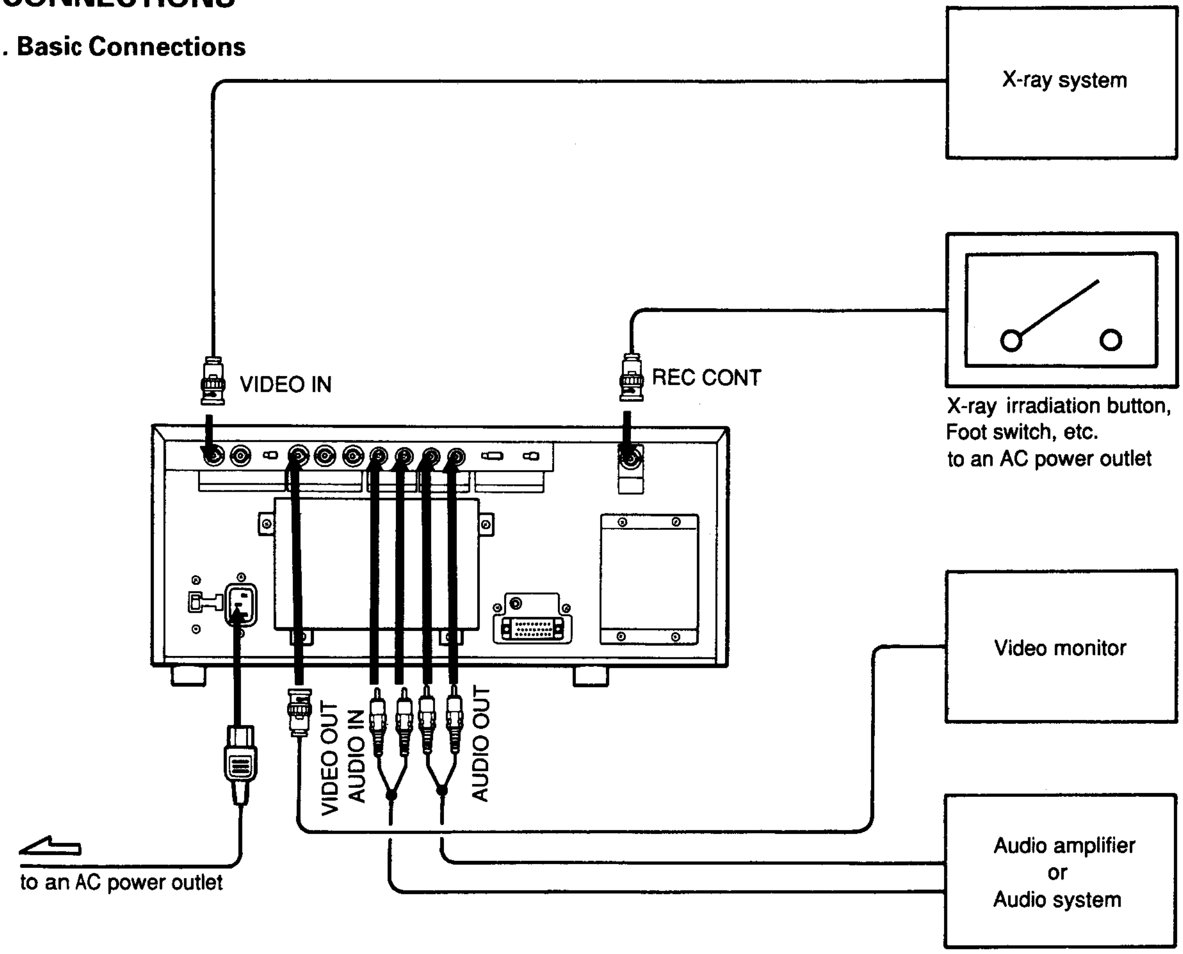
Record Inhibit Button

When re-recording on a recorded tape, the pre-recorded material will be automatically erased. If you want to safeguard the material recorded on a tape, remove the red button on the bottom of the cassette. With the red button removed, it cannot be recorded even if the REC button is pressed. Accidental erasure is now impossible. When recording, check the red button is in the place. If a cassette without a red button is inserted, a picture which is input does not appear on the monitor screen.

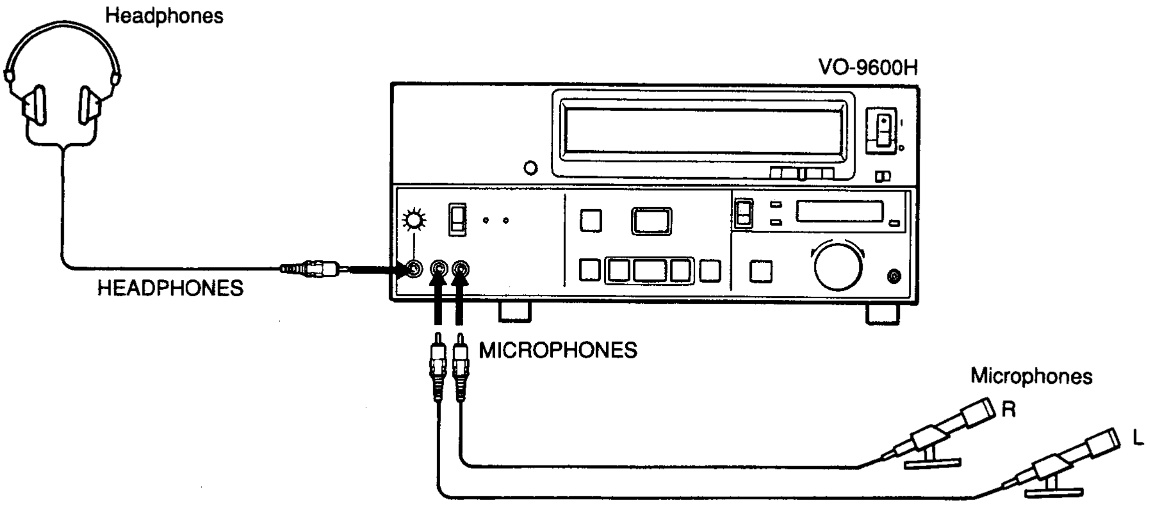


1-4. CONNECTIONS

1-4-1. Basic Connections


X-ray system
VIDEO IN
REC CONT
X-ray irradiation button,
Foot switch, etc.
to an AC power outlet
Video monitor
VIDEO OUT
AUDIO IN
AUDIO OUT
to an AC power outlet
Audio amplifier
or
Audio system

1-4-2. Connections of Headphones and Microphones


Headphones
VO-9600H
HEADPHONES
MICROPHONES
Microphones
R
L

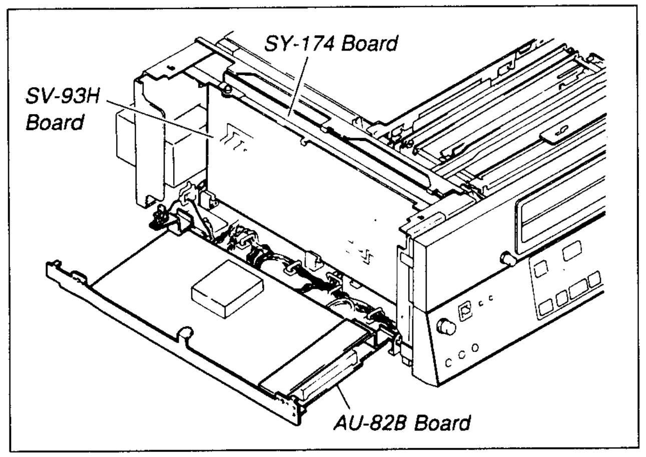
Note

When the microphones are connected, the signals connected to the AUDIO IN connectors on the rear panel are automatically cut off, and signals from the microphones will be recorded.

2-2. SERVICE OF PRINTED CIRCUIT BOARDS

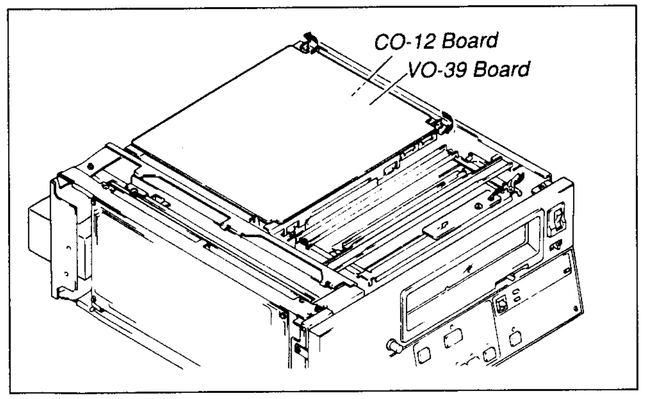
2-2-1. AU-82B, SV-93H and SY-174 Boards

Open AU-82B Board as shown in the figure.


SY-174 Board
SV-93H Board
AU-82B Board

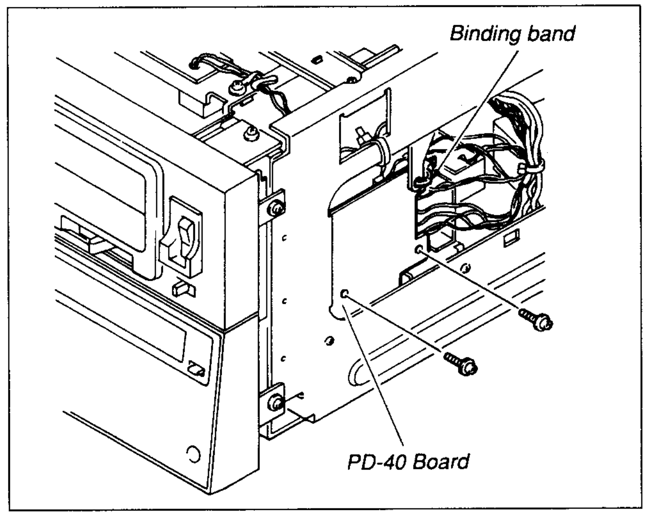
2-2-2. VO-39 Board

Open VO-39 Board after turning a fasner in the direction of the arrow. You can repair the complete side of it.


CO-12 Board
VO-39 Board

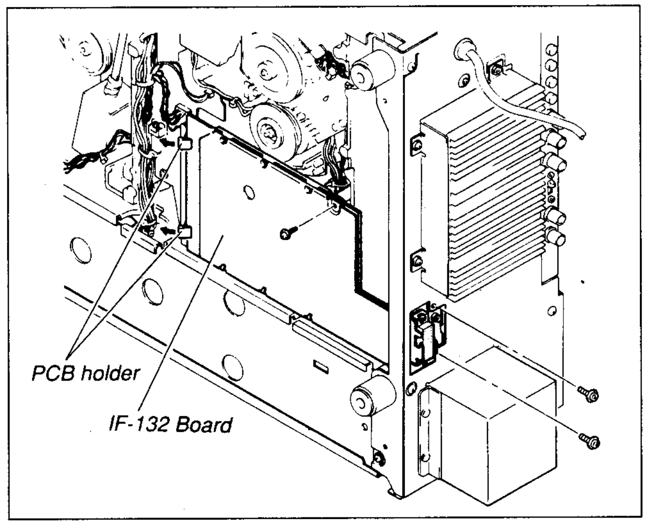
2-2-3. PD-40 Board

Remove 2 fixing screws after cutting a binding band. Remove PD-40 Board.


Binding band
PD-40 Board

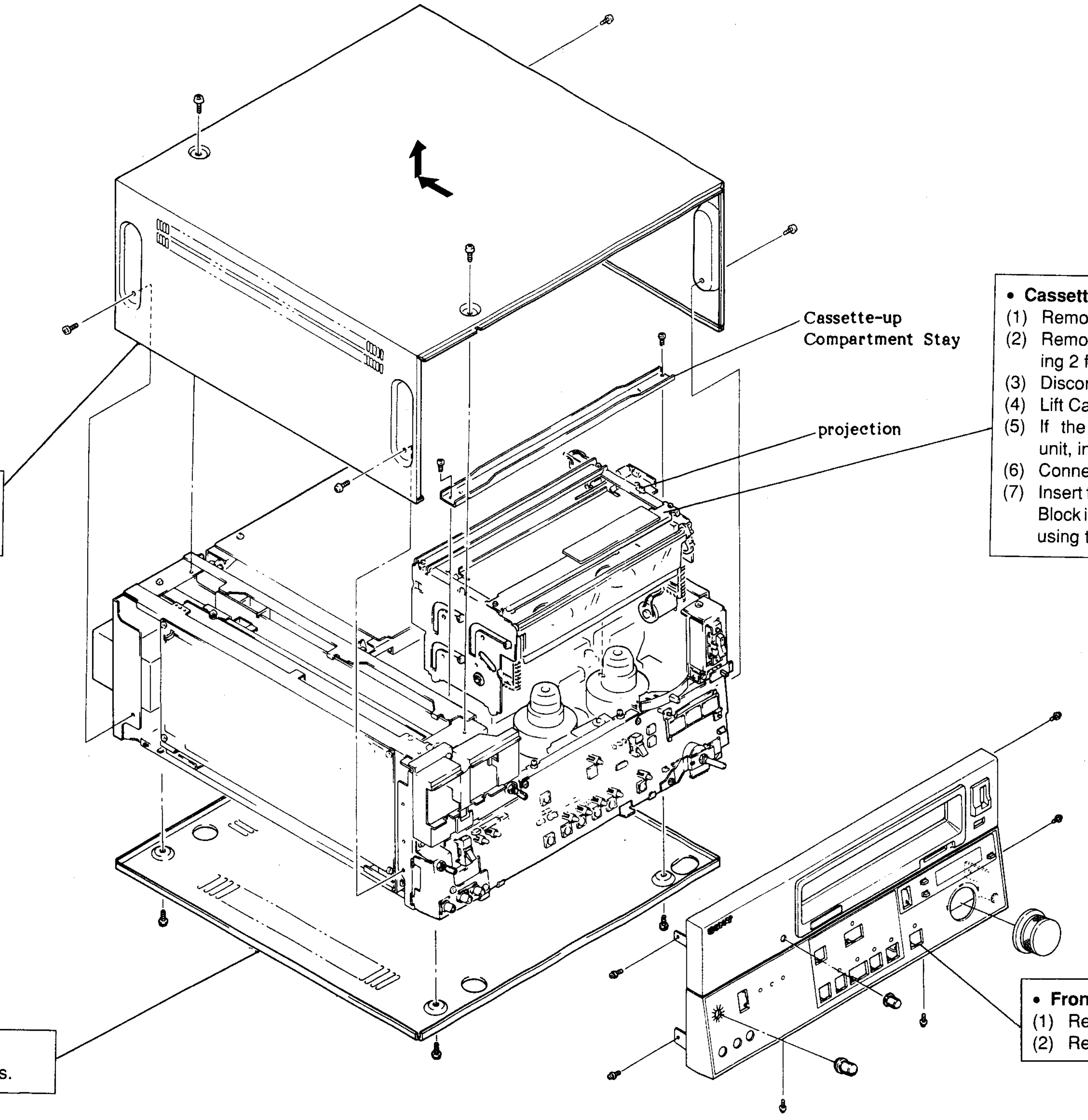
2-2-4. IF-132 Board

(1) Open IF-132 Board after releasing 2 PCB holders in the direction of the arrows.
(2) Remove 1 fixing screw.
(3) Remove 2 fixing screws installed RX DATA terminal and REMOTE terminal.


PCB holder
IF-132 Board

SECTION 2
SERVICE INFORMATION

2-1. REMOVAL OF CABINET



- **Upper Case**
Remove Upper Case in the direction of the arrow after removing 6 fixing screws as shown in the figure.

- **Lower Case**
Remove Lower Case after removing 4 fixing screws.

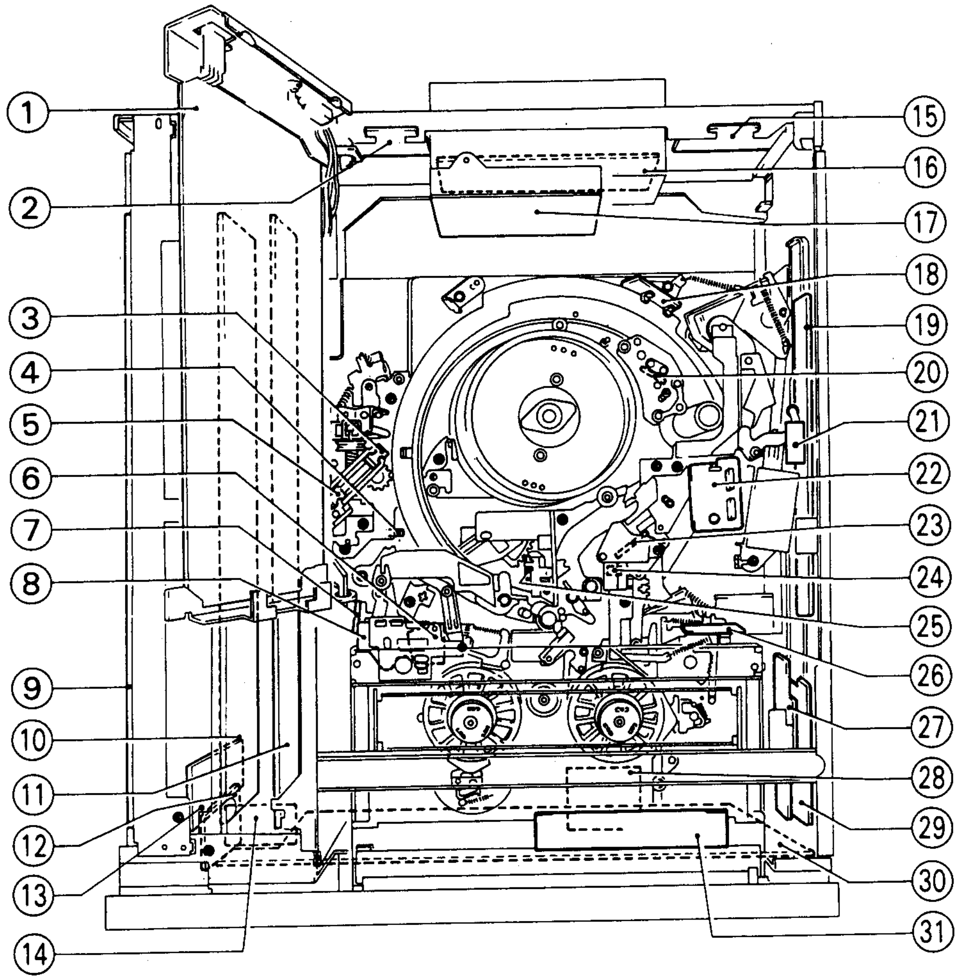
- **Cassette-up Compartment**
  1. (1) Remove the Upper Case.
  2. (2) Remove Cassette-up Compartment Stay after removing 2 fixing screws.
  3. (3) Disconnect CN831 on CC-36 Board.
  4. (4) Lift Cassette-up Compartment Block.
  5. (5) If the Cassette-up Compartment Block installs to the unit, insert the projection of it in the hole of chassis.
  6. (6) Connect CN831 on CC-36 Board.
  7. (7) Insert the projections of the Cassette-up Compartment Block in the holes of the Cassette-up Compartment Stay using the fixing screws.

- **Front Panel**
  (1) Remove the Upper Case.
  (2) Remove 6 fixing screws as shown in the figure.

2-3. MAIN PARTS LOCATION

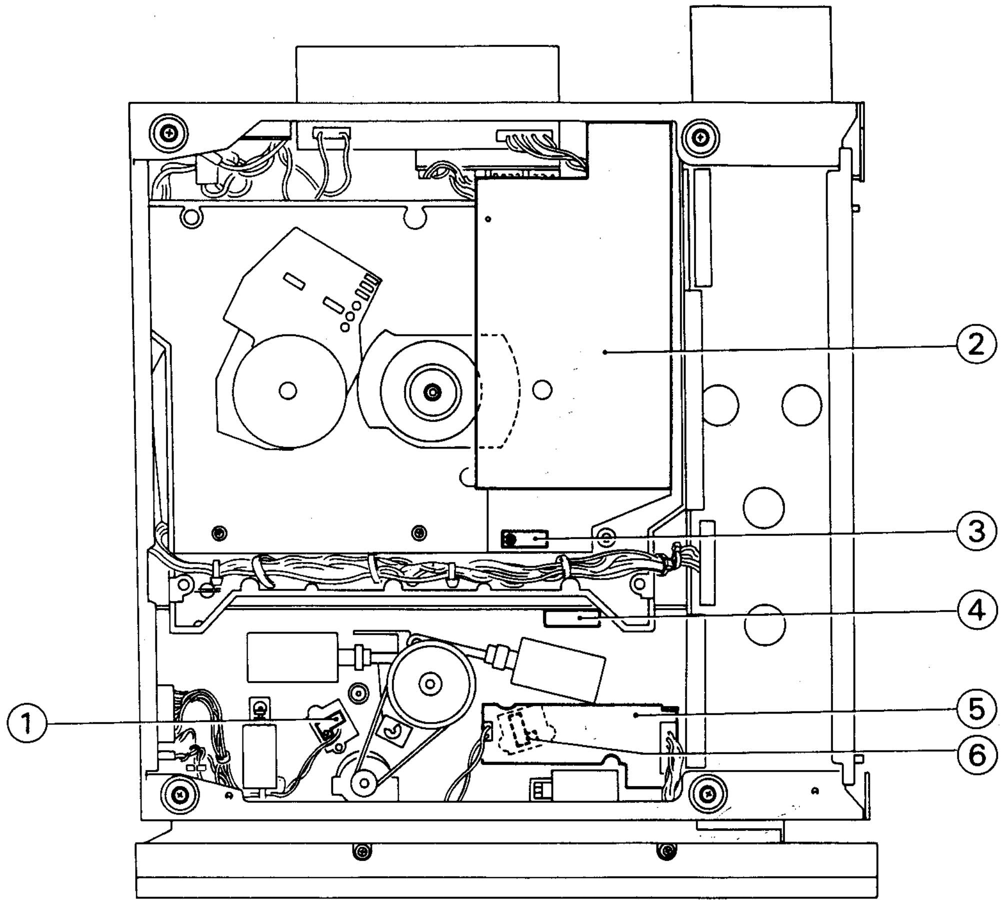
2-3-1. Location of Printed Circuit Boards

[TOP VIEW]



1	VO-39 Board
2	CN-596 Board
3	PH-5 Board
4	LM-13 Board
5	PH-5 Board
6	SE-46 Board
7	PTC-34 Board
8	PTC-30 Board
9	AU-82B Board
10	SV-93H Board
11	SY-174 Board
12	HP-30 Board
13	DUS-408 Board
14	MC-28 Board
15	AC-125 Board (UC) AC-126 Board (EK)
16	UR-14 Board in Switching Regulator (UC) UR-14E Board in Switching Regulator (EK)
17	DC-31 Board (UC) DC-31A Board (EK)
18	PTC-33 Board
19	RP-36A Board
20	DUS-92 Board
21	DUS-383 Board
22	DUS-147 Board
23	EC-28 Board
24	PH-5 Board
25	PH-5 Board
26	CC-37 Board
27	CC-36 Board
28	RM-39 Board
29	PD-40 Board
30	KY-105H Board
31	LP-41 Board

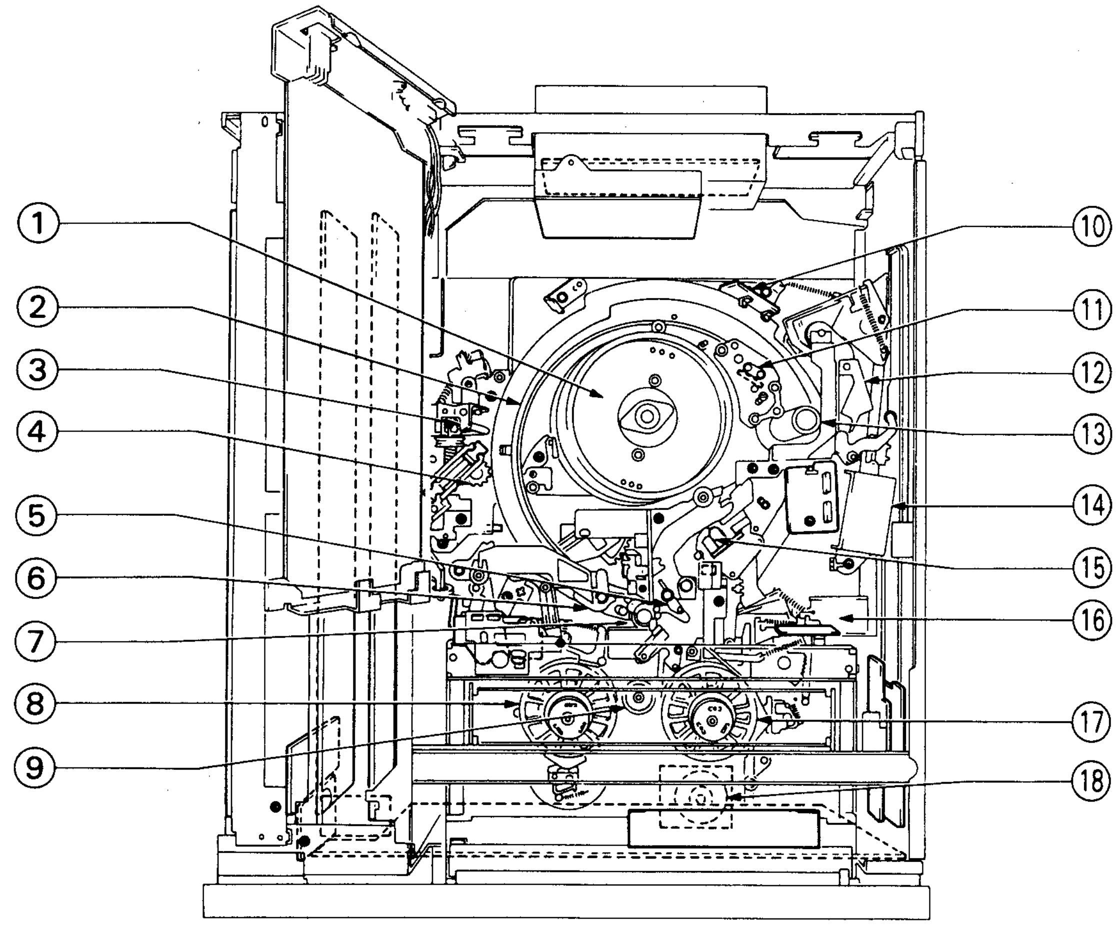
[BOTTOM VIEW]



1	PTC-35 Board
2	IF-132 Board
3	PT-9 Board
4	TG-22 Board
5	PD-41 Board
6	PTC-35 Board

2-3-2. Location of Mechanical Main Parts/Components

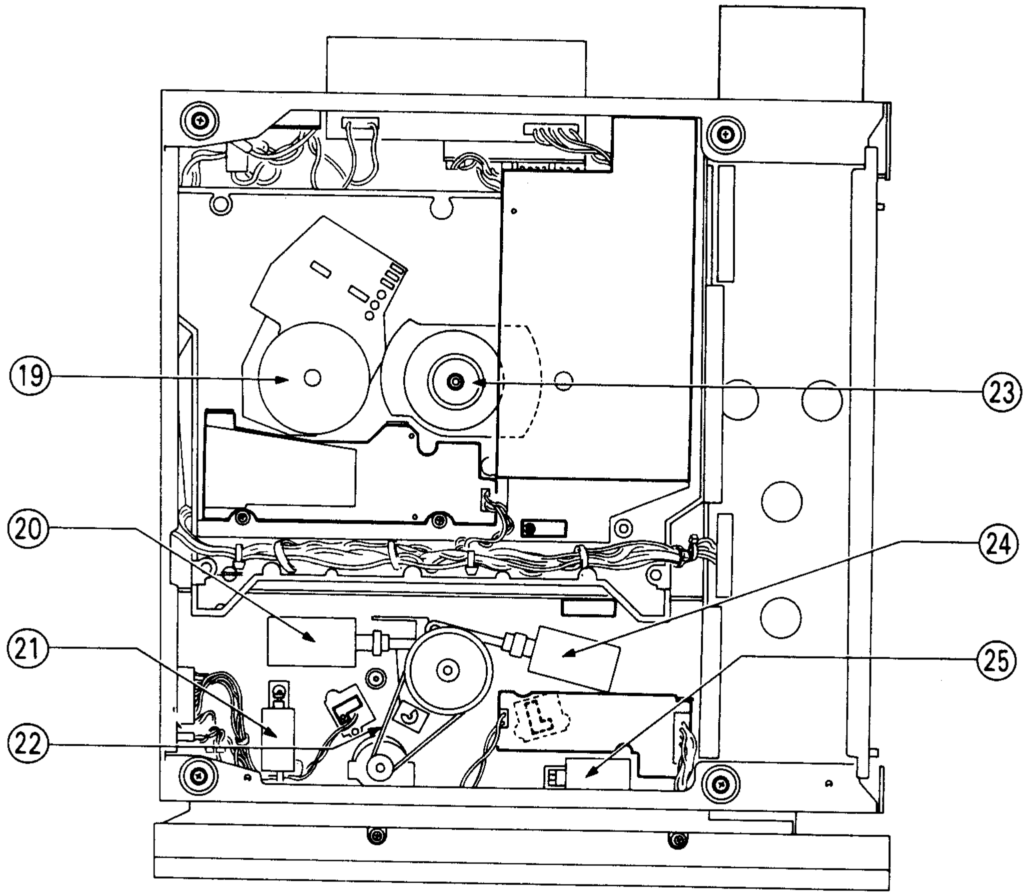
[TOP VIEW]



1 Head Drum
2 Threading Ring
3 T Correction Guide
4 Gear Box
5 S Drawer Arm
6 T Drawer Arm
7 Pinch Roller
8 Take-up Reel Table
9 FF/REW Idler

10 FR Detector
11 Audio/CTL Head
12 Pinch Lever
13 Capstan Shaft
14 Pinch Solenoid
15 CTL PB Head
16 Search Solenoid
17 Supply Reel Table
18 Reel Motor

[BOTTOM VIEW]



19 Capstan Motor
20 Supply Idler Solenoid
21 Supply Brake Solenoid
22 Belt for FF/REW Idler
23 Drum Motor
24 Take-up Idler Solenoid
25 Take-up Brake Solenoid

2-4. PRINTED CIRCUIT BOARDS

Circuit information is provided below.

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	DUS-506	PB WHITE CLIP
	RP-36A	PB Amplifier
	VO-39	Y REC/PB
	VL-5	EE LEVEL
AUDIO	AU-82B	PB Amplifier
	DUS-92	Audio CTL Head
	DUS-147	Audio CTL Head
	DUS-408	Audio REC Level
	HP-30	Headphones
	MC-28	MIC IN
SERVO	EC-28	CTL Head
	DUS-92	Audio CTL Head
	DUS-147	Audio CTL Head
	PT-9	Reel Motor Driver
	SV-93H	Servo System
POWER	AC-125	AC Input (J/UC)
	AC-126	AC Input (EK)
	DC-31	DC Supply (J/UC)
	DC-31A	DC Supply (EK)
	UR-14	Switching Regulator (J/UC)
	UR-14E	Switching Regulator (EK)
KEY	KY-105H	Function Key/Display
SYSCON	IF-132	33P Interface
	PD-40	Plunger Solenoids
	PD-41	Plunger Solenoids
	PH-5	Tape Beginning/End Sensor
	SY-174	System Control
OTHERS	CC-36	Junction Board for CC-37 and LP-41
	CC-37	Cassette In Detector
	CN-596	Voltage Selector
	LM-13	Threading Motor
	LP-41	Cassette Compartment Light
	PTC-30	SP, Miss REC. KCA Detector
	PTC-33	FR Stop Detector
	PTC-34	Unthreadent Detector
	PTC-35	S/T Reel Rotation Detector
	RM-39	Reel Motor
	SE-46	Tension Regulator Detector
	TG-22	Tension Regulator LED

2-5. CONNECTORS

When external cables are connected to the various connectors on the connector panel during maintenance, the hardware listed below (or equivalents) must be used.

Panel Indication	Connector
REC OUT VIDEO IN 1, 2 VIDEO OUT 1, 2, 3	1-506-069-11 PLUG, BNC, MALE
AUDIO LINE IN CH-1 AUDIO LINE IN CH-2 AUDIO LINE OUT CH-1 AUDIO LINE OUT CH-2	1-506-311-00 PLUG, PIN

2-6. INPUT/OUTPUT SIGNAL OF THE CONNECTOR

INPUT

VIDEO IN: 1.0±0.2 Vp-p, 75 ohms unbalanced, sync negative

MIC IN CH-1/L, CH-2/R (Front Panel):
–60 dBu (3K ohm microphones is usable)

AUDIO LINE IN CH-1/L, CH-2/R:
–10 dBu, 47 Kohm

REC CONTROL:
1.0±0.2 Vp-p, 75 ohms, unbalanced, sync negative

OUTPUT

VIDEO OUT 1, 2, 3:
1.0±0.2 Vp-p, 75 ohms, unbalanced, sync negative

AUDIO LINE OUT CH-VL, CH-2/R:
–5 dBu (at 47K ohm load)

HEADPHONES OUT (Front Panel):
–24 to –46 dBu (at 8 ohm load), adjustable

REMOTE CONTROL

REMOTE (33P)

Pin	Input/Output Signal
1	DC6. 8V OUT
2	L; EDIT STATUS OUT
3	L; REC STATUS OUT
4	N. C
5	L; REC COMMAND IN
6	L; EDIT COMMAND IN
7	L; CASSETTE IN STATUS OUT
8	L; STOP COMMAND IN
9	L; PAUSE COMMAND IN
10	FWD/REV (L) COMMAND IN
11	L; REW COMMAND & STATUS IN/OUT
12	L; FF COMMAND & STATUS IN/OUT
13	L; PLAY COMMAND & STATUS IN/OUT
14	GND
15	CTL PAUSE OUT
16	L; TAPE STOP OUT
17	L; PULSE STATUS OUT
18	L; 300 REMOTE IN. STAND-BY STATUS OUT
19	L; FUNCTION DISABLE OUT
20	L; TAPE BEGIN OUT
21	L; FWDX1 COMMAND & STATUS IN/OUT
22	SEARCH SPEED IN
23	L; FUNCTION ON IN
24	SYSTEM CLOCK OUT
25	STROBE OUT
26	SERIAL DATA OUT
27	SERIAL DATA IN
28	N. C
29	N. C
30	N. C
31	N. C
32	N. C
33	FORMAT DISCRIMINATION IN

2-7. SPARE PARTS

(1) The ⚠-marked components are critical to safety. Replace only with the same components as specified.

(2) Replacement parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to **the use of improved parts and/or to engineering changes** or **standardization of genuine parts.**
This manual's exploded views and electrical spare parts list indicate the part numbers of **the standardized genuine parts in use at present.**
Regarding part changes in our engineering department, refer to Sony service bulletins and service manual supplements.

(3) The parts marked with **s** in the SP column of the exploded views and electrical spare parts list are normally stocked for replacement purposes. The parts marked with **o** in the SP column are not normally required for routine service work. Orders for parts marked with **o** will be processed, but allow for additional delivery time.

2-8. SELECT SWITCH SETTING

There are select switches on Control Panel and Connector Panel. The select switch on SY-174 Board is as follows. Select the select switch according to your system and operation condition.

- SY-174 Board

SW1: SELF DIAGNOSTIC SWITCH
ON: SELF DIAGNOSTIC mode
OFF: NORMAL mode
When the unit is shipped, this switch is selected to the OFF.

2-9. HOW TO OPERATION THE UNIT WITHOUT A CASSETTE TAPE

(1) Remove the Cassette-up Compartment refer to Section 2-1. Tape Beginning Sensor and Tape End Sensor do not operate according to disconnect the connector of the Cassette-up Compartment Block.

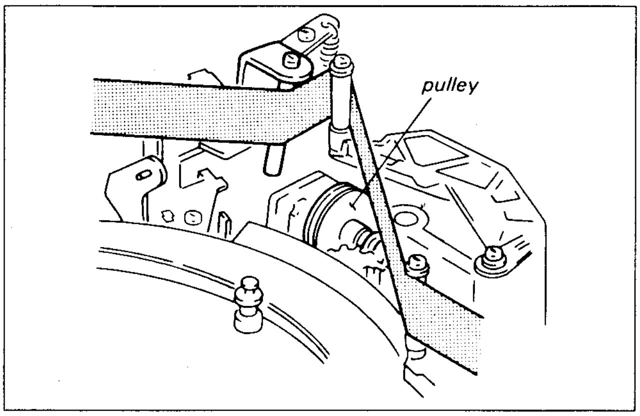
(2) Turn the POWER OFF. The unit selects into the FR-STOP mode automatically.

(3) The unit selects into your required mode by means of pressing your requested function button.

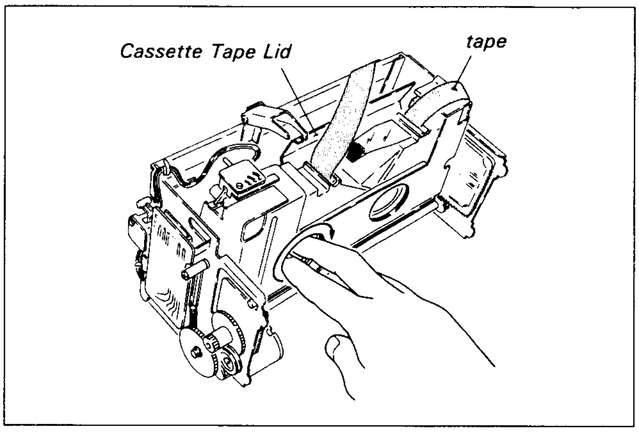
2-10. CASSETTE REMOVAL PROCEDURE WHEN NORMAL EJECTION IS NOT POSSIBLE

If the EJECT operation is not possible because of the Cassette-up Compartment does not rise, a cassette tape can be removed from the unit by means of the following procedure.

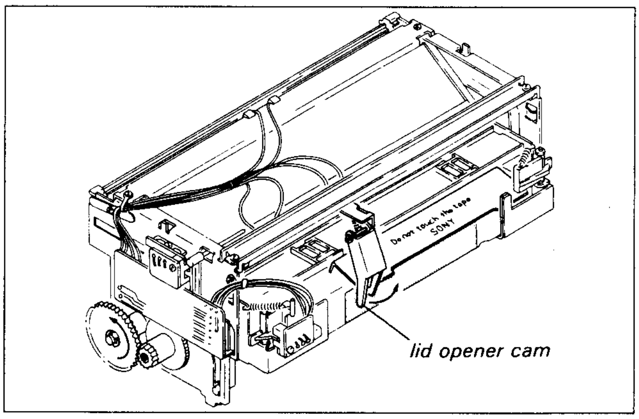
(1) Turn the POWER OFF.
(2) Remove the Upper Case refer to Section 2-1.
(3) Turn the white pulley of Gear Box clockwise using a hand until S Drawer Arm is situated at the front of CTL head. The Threading Ring moves in the unthreading direction, but the tape remains at the threading completion position.



(4) Disconnect CN831 on CC-36 Board of the Cassette-up Compartment.
(5) Remove the Cassette-up Compartment Stay refer to Section 2-1.
(6) Lift the Cassette-up Compartment slowly with the cassette tape in.
(7) Hold Cassette Tape Lid so that it does not close. Turn reel hub on the back of the cassette using a hand, and wind the tape in the cassette.



(8) Raise lid opener, and close the Cassette Tape Lid.



(9) Remove the tape from the Cassette-up Compartment.
(10) Turn gear on the right side of the Cassette-up Compartment counterclockwise using a hand so that the Cassette-up Compartment is situated at the UP position.

2-11. FIXTURE

Part No.	Description	Application
J-6001-820-A	Drum Eccentricity Gauge (3)	Upper Drum Eccentricity Adjustment
J-6001-830-A	Drum Eccentricity Gauge (2)	Upper Drum Eccentricity Adjustment
J-6001-840-A	Drum Eccentricity Gauge (1)	Upper Drum Eccentricity Adjustment
J-6001-930-A	Drum Eccentricity Gauge (4)	Upper Drum Eccentricity Adjustment
J-6009-830-A	Flatness Plate	CTL PB Head Position Adjustment
J-6026-240-A	Adjustment Driver	Electrical Alignment
J-6130-010-A	Reel Table Height Check Base Tool	Reel Table Height Adjustment
J-6130-020-A	Reel Table Height Check Tool	Reel Table Height Adjustment
J-6150-140-A	Eccentric Screwdriver (6 mm dia.)	Position Adjustment
J-6153-020-A	Eccentric Screwdriver	Video Head Adjustment
J-6153-580-A	Pinch Lever Adjustment Tool	Pinch Lever Right Angle Adjustment
Y-2031-001-0	Cleaning Fluid	Cleaning
2-034-697-00	Cleaning Piece	Cleaning
3-702-216-01	Back Tension Adjustment Tool	Back Tension Adjustment
7-732-050-20	Tension Scale (50 gm full scale)	Measurement of Back Tension & Torque
7-732-050-30	Tension Scale (100 gm full scale)	Measurement of Back Tension & Torque
7-732-050-40	Tension Scale (200 gm full scale)	Measurement of Back Tension & Torque
7-732-050-50	Tension Scale (500 gm full scale)	Measurement of Back Tension & Torque
8-899-999-53	100 mm dia. Torque Measureme Tape	Measurement of Back Tension
8-960-015-04	Alignment Tape, RR5-3SA NTSC	
8-960-035-61	Alignment Tape, RR5-2SC PAL	
9-911-053-00	Thickness Gauge	Clearance Check & Adjustment

2-12. DIAGNOSTIC FUNCTION IN SYSTEM CONTROLLER

2-12-1. Outline of Self Diagnosis

VO-9600H has self diagnostic function for system control circuit which determines if the source of problem is in the microcomputer itself or not.
System control function is classified into mechanical operation control, and electrical operation control.
The defects of the mechanical operation, and control operation are efficiently analyzed using the self diagnostic function.
VO-9600H uses 6 one-chip microcomputers.
M1 and M2 switches include memories, and I/O ports. M1 and M2 switches are used for VTR system control.
M3 is used for controlling capstan motor, M4 is used for controlling display, M5 is used for decoding remote control signal and M6 is used for 33-pin interface.

2-12-2. Diagnosis Method

Turn SW1 on SY-174 Board POWER ON so that diagnostic function is activated.
The input and output data of the microcomputer's I/O port are displayed four bits at a time for each test address shown in the table on pages 2-11 throng 2-14. If RESET button is pressed, the test address is displayed. If MARK IN A button is pressed while pressing the RESET button, the LSB of the test address is changed as follows.

→ 0 → 1 → 2 → ··· → 9 → L → H → P → R → (minus) → (blank)

If the MARK IN B button is pressed while pressing the RESET button, the MSB of the test address is changed as follows.

→ 0 → 1 → 2

26 test addresses are available in hexadecimal notation. If the RESET, MARK IN A and MARK IN B buttons are pressed, your requested test address data (Digits 1 through 4) can be displayed on the LEDs of the Front Panel shown in the table on pages 2-11 through 2-14. On the LED display, logic H is displayed 1 and logic L is 0. These logic values are changed according to VTR operating condition.
H: DRUM STOP signal at test address 01 can be observed by the following procedure.

(Operation)	(LED display) CTL Display	(Remarks)
SW1/SY-174 Board — ON	1100	DIAGNOSTICS MODE
Press the RESET button	00	TEST ADDRESS = 00
Press the MARK IN A button once while pressing the RESET button	01	TEST ADDRESS = 01
Release the RESET button	1111	Data for 01

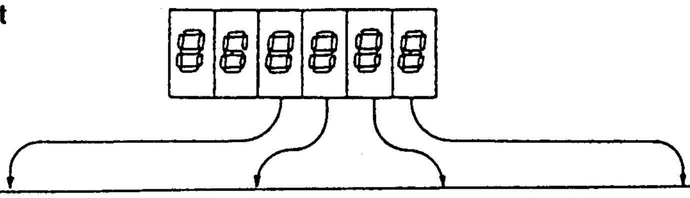
H: DRUM STOP signal

If the drum is stopped, MSB displays 1 (H). If a cassette tape is inserted in the VTR and select into the PLAY mode, the display 1 (H) is changed to 0 which indicates rotation command.
The input and output signals of the microcomputer in each mode are shown in the timing chart on pages 2-15 through 2-24. If the input signal is properly input to the microcomputer in each mode, the microcomputer is output the output signal shown in the timing chart.

2-12-3. Troubleshooting

Troubleshooting procedure using the self diagnostic function is as follows. The mode conversion diagram of the mechanical operation is shown on page 2-15. Refer to this diagram, and check the present trouble occurs where the mode conversion or mechanism operation. If the mode where the trouble occurs is detected, refer to the timing chart described in the mode conversion diagram. The timing chart shows the input and output signals of the microcomputer into each mode. If the motor or solenoid is abnormal, observe the output signal line using a LED and check whether it is changed as shown in the timing chart. If the output signal from the microcomputer is normal, check the output signal of the next microcomputer. This process is continued. If the signal line is not changed as the timing chart, refer to schematic diagram for the trouble source. The timing chart lists input/output signal names, test address displayed signal, digits, and the microcomputer pin which is input or output.
For example H: DRUM STOP signal is 01-DIGIT1, and displayed in MSB (digit 1) when the test address is 01. Check the input and output signals are changed using the actual VTR operation as shown in the timing chart.

2-12-4. Diagnosis List



TEST ADDRESS	DISPLAYED DATA				INPUT/OUTPUT PORT NAME ON THE MICRO PROCESSOR	
	DIGIT 1	DIGIT 2	DIGIT 3	DIGIT 4		
00	CAPSTAN CMD FWD/REW (1=FWD CMD 0=REV CMD	DRUM NORMAL/SEARCH (1=NORMAL 0=SEARCH MODE	AUTO CH-2 PB/EE (1=EE 0=PB	AUTO CH-1 PB/EE (1=EE 0=PB	E1	OUT/IC7 on SY
01	H:DRUM STOP CMD (1=DRUM STOP 0=DRUM ROTATE	VIDEO PB/EE (1=PB 0=EE	L:AUDIO CH-2 REC 0=CH-2 REC	L:AUDIO CH-1 REC 0=CH-1 REC	E2	OUT/IC7 on SY
02	CTL COUNT UP/DOWN (1=COUNT UP 0=COUNT DOWN	L:SKEW SOL.ON (1=OFF 0=ON	L:VIDEO CH-B REC 0=CH-B REC	L:VIDEO CH-A REC 0=CH-A REC	E3	OUT/IC7 on SY
03	H:REEL REV 1=SEARCH REV MODE	H:REEL FWD 1=PLAY.REC.orSEARCH FWD MODE	H:REEL STILL 1=PLAY(REC)PAUSE or SEARCH PAUSE	H:REEL STOP 1=STOP MODE	P	OUT/IC7 on SY
04	H:REEL FF/REW (1=FF or REW MODE 0=other mode	L:SEARCH SOL.ON (1=OFF 0=ON	L:PINCH SOL.ON (1=OFF 0=ON	1	O	OUT/IC7 on SY
05	L:T-BRAKE SOL.ON (1=OFF 0=ON	L:S-BRAKE SOL.ON (1=OFF 0=ON	L:T-IDLER SOL.ON (1=OFF 0=ON	L:S-IDLER SOL.ON (1=OFF 0=ON	E0	OUT/IC7 on SY
06	SEARCH SPEED DATA (NOTE 1)				R2	OUT/IC7 on SY
07	L:CASSETTE COMPARTMENT UP CMD 0=UP	L:CASSETTE COMPARTMENT DOWN CMD 0=UP DOWN	L:THREAD MOTOR ON 0=THREAD	L:UNTHREAD MOTOR ON 0=UNTHREAD	R3	OUT/IC7 on SY
08	L:SERVO LOCK (1=UNLOCK 0=LOCK	L : FR – UNTHREAD POSITION	H:CASSETTE DOWN 1=DOWN (NOTE 2)	H:CASSETTE IN 1=INSERTED	K	IN/IC7 on SY
09	H:DRUM STOP (1=STOP 0=ROTATE	L : REEL STOP (1=STOP 0=ROTATE	H:T-IDLER ON (1=ON 0=OFF	H:T-REEL STOP (1=STOP 0=ROTATE		
0L	L:CAPSTAN STOP (1=ROTATE 0=STOP	CAPSTAN FWD/REV (1=FWD 0=REV	UNTHREAD END (NOTE 3)	THREAD END	R1	IN/IC7 on SY
0H	0	0	PAUSE SELECT-1 (NOTE 4)	PAUSE SELECT-0	E4	IN/IC7 on SY
0P	L:DRUM ROTATE (1=STOP 0=ROTATE	L:CASSETTE CONNECT 0=COMPARTMENT IS CONNECTED	L:SLACK DET:OFF (NOTE 5)	0	E5	IN/IC7 on SY
0R	RING SLACK ERROR MESSAGE (NOTE 6) The condition of VTR is detected by IC7/SY board when the ring slack occurs. The RING SLACK means that the threading ring isn't rotating.					
0-	0	0	0	0		
0(Blank)	0	0	0	0		

10	H:FF KEY ON 1=ON 0=OFF	H:PLAY KEY ON 1=ON 0=OFF	H:REW KEY ON 1=ON 0=OFF	H:STOP KEY ON 1=ON 0=OFF
11	H:DUB KEY ON 1=ON 0=OFF	H:REC KEY ON 1=ON 0=OFF	0	H:PAUSE KEY ON 1=ON 0=OFF
12	0	0	0	H:EJECT KEY ON 1=ON 0=OFF
13	H:SERCH CMD 1=SERCH 0=NORMAL	FWD/$\overline{\text{REV}}$ CMD 1=FWD 0=REV	0	0
14	H:TIMER PLAY SW ON 1=ON 0=OFF	H:TIMER REC SW ON 1=ON 0=OFF	H:TIMER PLAY STATUS 1=TIMER PLAY 0=OTHER MODE	H:TIMER REC STATUS 1=TIMER REC 0=OTHER MODE
15	CTL/$\overline{\text{FC}}$ SW 1=CTL 0=FC	0	0	0
16	L:MISS-REC SW 1=REC EN 0=REC DIS	EIA/$\overline{\text{CCIR}}$ 1=EIA 0=CCIR	L:DEW DET 1=NOT DETECTED 0=DETECTED	H:PROGRAM REW SW 1=ON 0=OFF
17	H:KEY REQUEST 1=ANY KEY IS TURNED ON	H:REQUEST CMD 1=GOES INTO ANY MODE DURING PROGRAM OPERATION	RECORDER/$\overline{\text{PLAYER}}$ 1=RECORDER 0=PLAYER	H:PROGRAM REPEAT SW 1=ON 0=OFF
18	SEARCH SPEED DATA (NOTE 1) ←→			
19	1	1	1	1
1L	1	1	1	1
1H	1	L:RM-690 INHIBIT 1=ENABLED 0=INHIBITED	L:NO CTL 1=NORMAL 0=NO CTL IN PLAY MODE	0
1P	H:REW LED 1=ON 0=OFF	0	0	0
1R	H:REC LED 1=ON 0=OFF	H:PAUSE LED 1=ON 0=OFF	H:PLAY LED 1=ON 0=OFF	H:FF LED 1=ON 0=OFF
1-	H:STD-BY LED 1=ON 0=OFF	H:REV SEARCH LED 1=ON 0=OFF	H:FWD SEARCH LED 1=ON 0=OFF	H:DUB LED 1=ON 0=OFF
1(Blank)	H:FC LED 1=ON 0=OFF	H:KEY INHIBIT 1=SW ON BKU-701 INHIBITS FRONT KEYS	H:HOURS METER ON 1=METER ON 0=METER OFF	H:BKU CONNECTED 1=CONNECTED 0=NOT CONNECTED

20	← REEL SLACK ERROR MESSAGE (NOTE 7) → The condition of VTR is detected by IC12/SY Board when the reel slack occurs. The REEL SLACK means that the reel motor is not rotating.			
21	0	0	0	0
22	0	0	0	0
23	L:UNTHREAD (1=OTHER MODE 0=UNTHREAD MODE	L:RX-DATA REC (1=OTHER MODE 0=RX-DATA REC MODE	L:VIDEO MUTE (1=VIDEO is OUTPUT 0=VIDEO is MUTED	H:AUDIO MUTE (1=AUDIO is MUTE 0=AUDIO is OUTPUT
24	1	0	1	0
25	0	0	0	0
26	0	0	0	0

NOTE 1 SEARCH SPEED DATA

DATA DISPLAYED	TAPE SPEED
0 0 0 0	NOISELESS STILL
0 0 0 1	×1/30
0 0 1 0	×1/10
0 0 1 1	×1/5
0 1 0 0	×1/2
0 1 0 1	×1
0 1 1 0	×2
0 1 1 1	×5
1 0 0 0	×8
1 0 0 1	STILL

NOTE 2 CASSETTE POSITION

CASSETTE DOWN	CASSETTE IN	CASSETTE POSITION
0	0	DURING CASSETTE-IN
0	1	DURING CASSETTE-DOWN
1	0	CASSETTE-UP COMPLETION
1	1	CASSETTE-DOWN COMPLETION

NOTE 3 THREAD END/UNTHREAD END

UNTHREAD END	THREAD END	THREADING RING POSITION
1	1	Between CASSETTE-IN and FR-STOP
0	1	THREAD END position
0	0	Between FR-STOP and THREAD END
1	0	FR-STOP position

NOTE 4 PAUSE SELECT-1/PAUSE SELECT-0

PAUSE SELECT-1	PAUSE SELECT-0	PAUSE TIMER
0	1	8 min
1	1	1 min
1	0	10 sec
0	0	2 sec

NOTE 5 SLACK DETECT

When shorting between TP 3 and GND (E1) on SY Board, SLACK Detector does not operate. Normal condition is “H”.

NOTE 6 RING SLACK ERROR MESSAGE

(This item shows the mode when the RING SLACK occurs.)

DATA DISPLAYED	CONDITION
0 0 0 0	RING SLACK is not occurring.
0 0 0 1	CASSETTE DOWN →FR-STOP
0 0 1 0	FR-STOP →THREAD END
0 1 0 0	FR-STOP →CASSETTE DOWN
0 1 0 1	DURING CASSETTE IN

NOTE 7 REEL SLACK ERROR MESSAGE

(This item shows the mode when the RING SLACK occurs.)

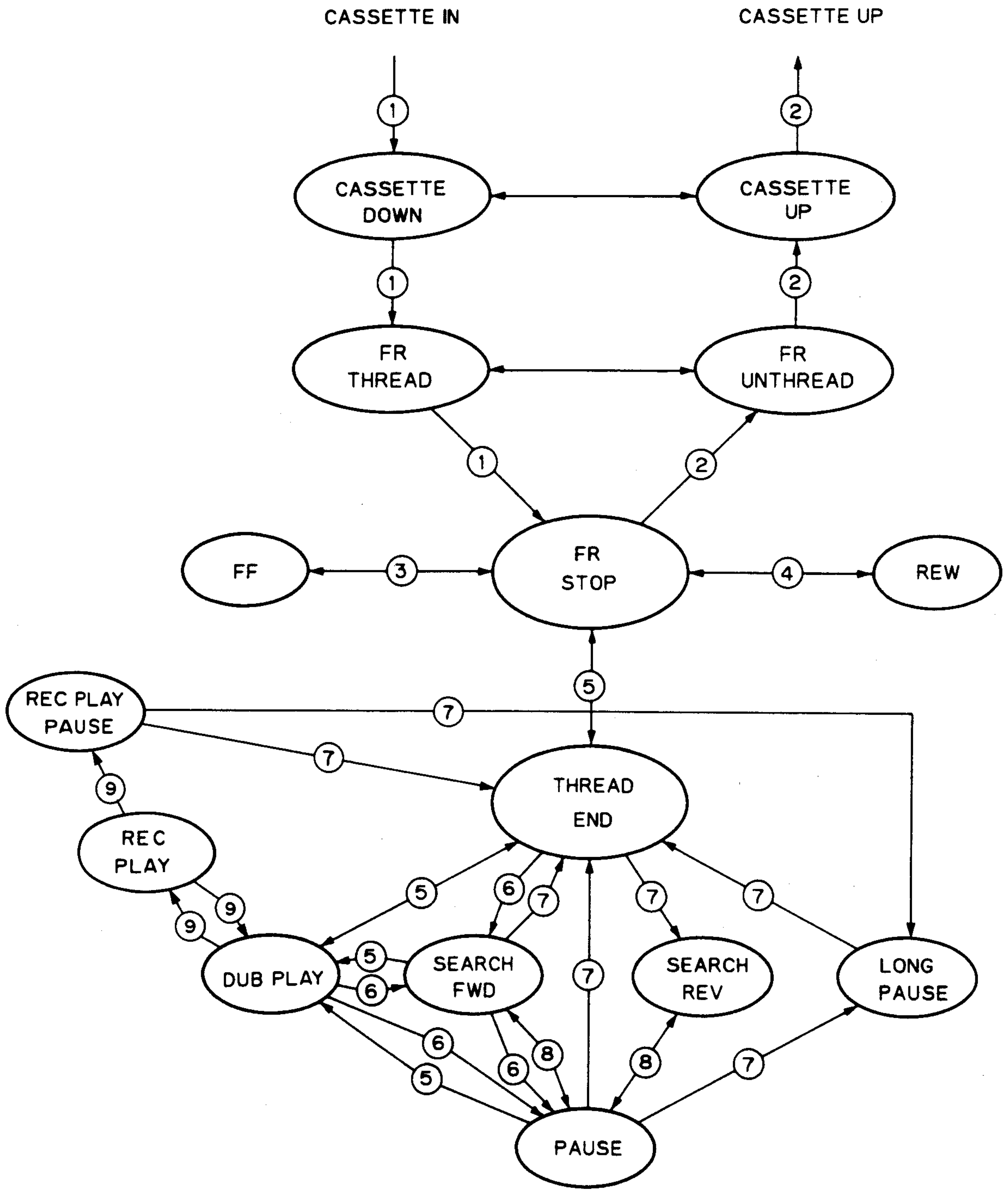
DATA DISPLAY				CONDITION
0	0	0	0	REEL SLACK DOES NOT OCCUR
0	1	1	0	FF or REW MODE
0	1	1	1	FR-STOP →FR UNTHREAD
1	0	0	0	THEND → FR-STOP
1	0	0	1	×5 or ×8 SPEED MODE
1	0	1	0	×1 or ×2 SPEED MODE
1	0	1	1	×1/2 SPEED MODE
1	1	0	0	×1/5 SPEED MODE
1	1	0	1	×1/10 SPEED MODE
1	1	1	0	×1/30 SPEED MODE

Selecting the Long Pause Timer

VO-9600H can be select 4 pattern as the following setting. It is can be controlled by TP5 (E-6), and JW144 (G-2).

JW144	TP5	PAUSE TIMER
SHORT	OPEN	8 min.
SHORT	GND SHORT	2 sec.
OPEN	OPEN	1 min.
OPEN	GND SHORT	10 sec.

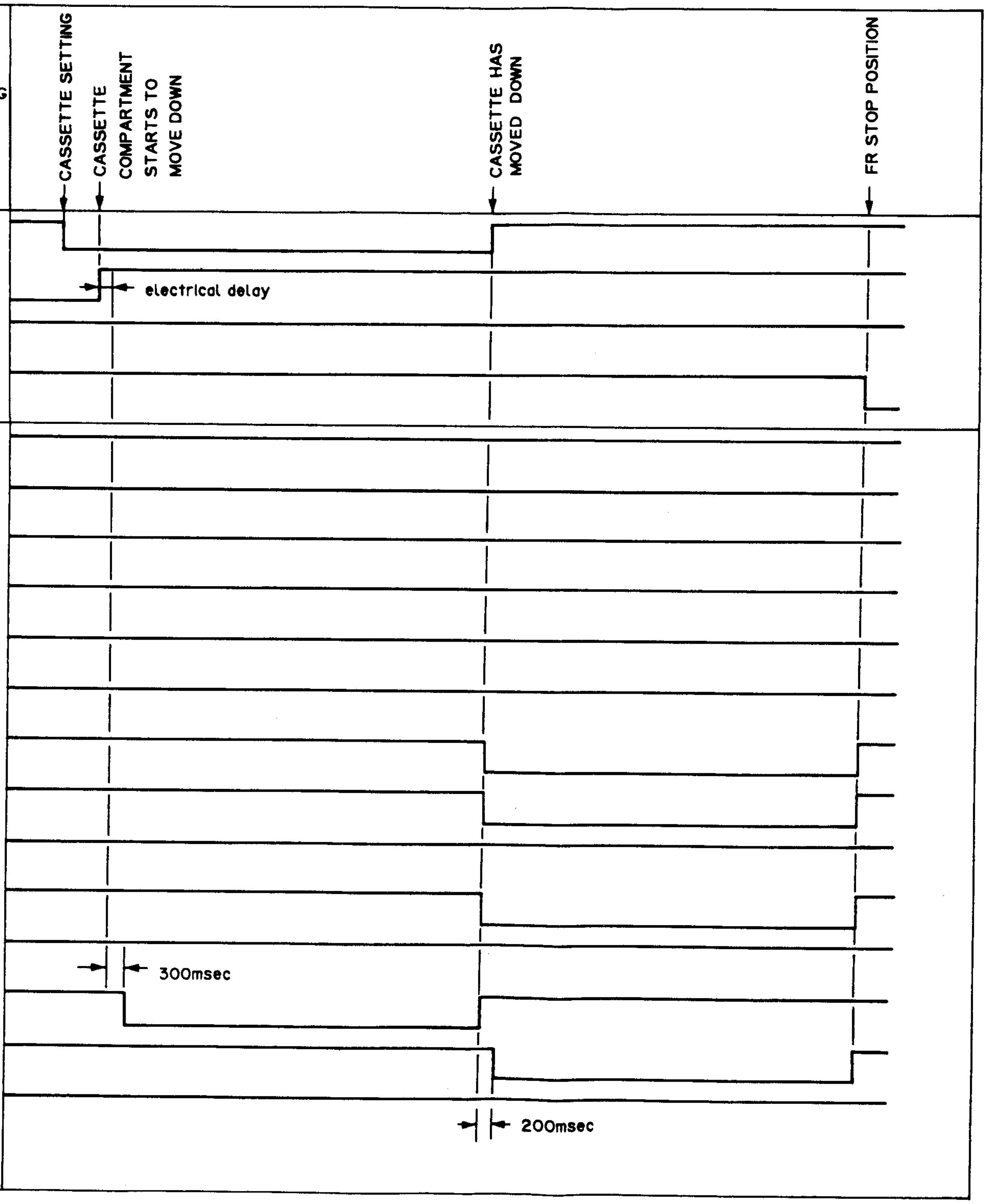
2-12-5. Mode Conversion Diagram and Timing Chart


CASSETTE IN
CASSETTE UP
①
②
CASSETTE DOWN
CASSETTE UP
①
②
FR THREAD
FR UNTHREAD
①
②
FF
③
FR STOP
④
REW
⑤
REC PLAY PAUSE
⑦
⑦
THREAD END
⑨
REC PLAY
⑨
⑨
⑤
⑥
⑦
⑦
⑦
DUB PLAY
⑤
⑥
SEARCH FWD
⑦
SEARCH REV
LONG PAUSE
⑥
⑤
⑥
⑧
⑧
⑦
PAUSE

NOTE: Number in the Figure means title number of Timing chart (page 2-16 through 2-24).

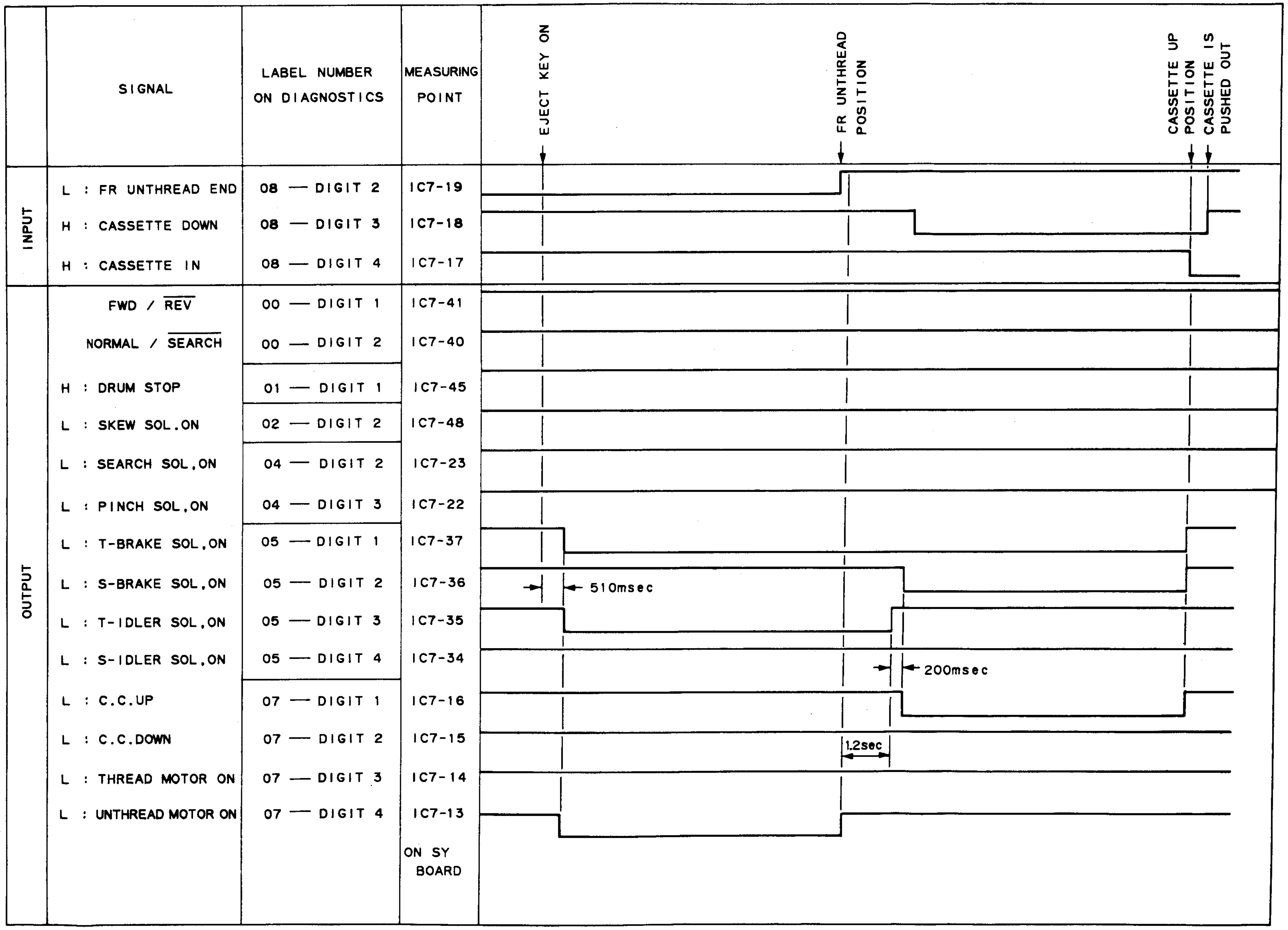
1. THREADING OPERATION (CASSETTE IN → CASSETE DOWN → FR STOP POSITION)

	SIGNAL	LABEL NUMBER ON DIAGNOSTICS	MEASURING POINT
INPUT	H : CASSETTE DOWN	08 — DIGIT 3	IC7-18
	H : CASSETTE IN	08 — DIGIT 4	IC7-17
	L : THREAD END	OL — DIGIT 4	IC7-5
	L : UNTHREAD END	OL — DIGIT 3	IC7-6
OUTPUT	FWD / $\overline{\text{REV}}$	00 — DIGIT 1	IC7-41
	NORMAL / $\overline{\text{SEARCH}}$	00 — DIGIT 2	IC7-40
	H : DRUM STOP	01 — DIGIT 1	IC7-45
	L : SKEW SOL.ON	02 — DIGIT 2	IC7-48
	L : SEARCH SOL.ON	04 — DIGIT 2	IC7-23
	L : PINCH SOL.ON	04 — DIGIT 3	IC7-22
	L : T-BRAKE SOL.ON	05 — DIGIT 1	IC7-37
	L : S-BRAKE SOL.ON	05 — DIGIT 2	IC7-36
	L : T-IDLER SOL.ON	05 — DIGIT 3	IC7-35
	L : S-IDLER SOL.ON	05 — DIGIT 4	IC7-34
	L : C.C. UP	07 — DIGIT 1	IC7-16
	L : C.C. DOWN	07 — DIGIT 2	IC7-15
	L : THREAD MOTOR ON	07 — DIGIT 3	IC7-14
	L : UNTHREAD MOTOR ON	07 — DIGIT 4	IC7-13
			ON SY BOARD


CASSETTE SETTING
CASSETTE COMPARTMENT STARTS TO MOVE DOWN
CASSETTE HAS MOVED DOWN
FR STOP POSITION
electrical delay
300msec
200msec

C.C. = CASSETTE UP COMPARTMENT

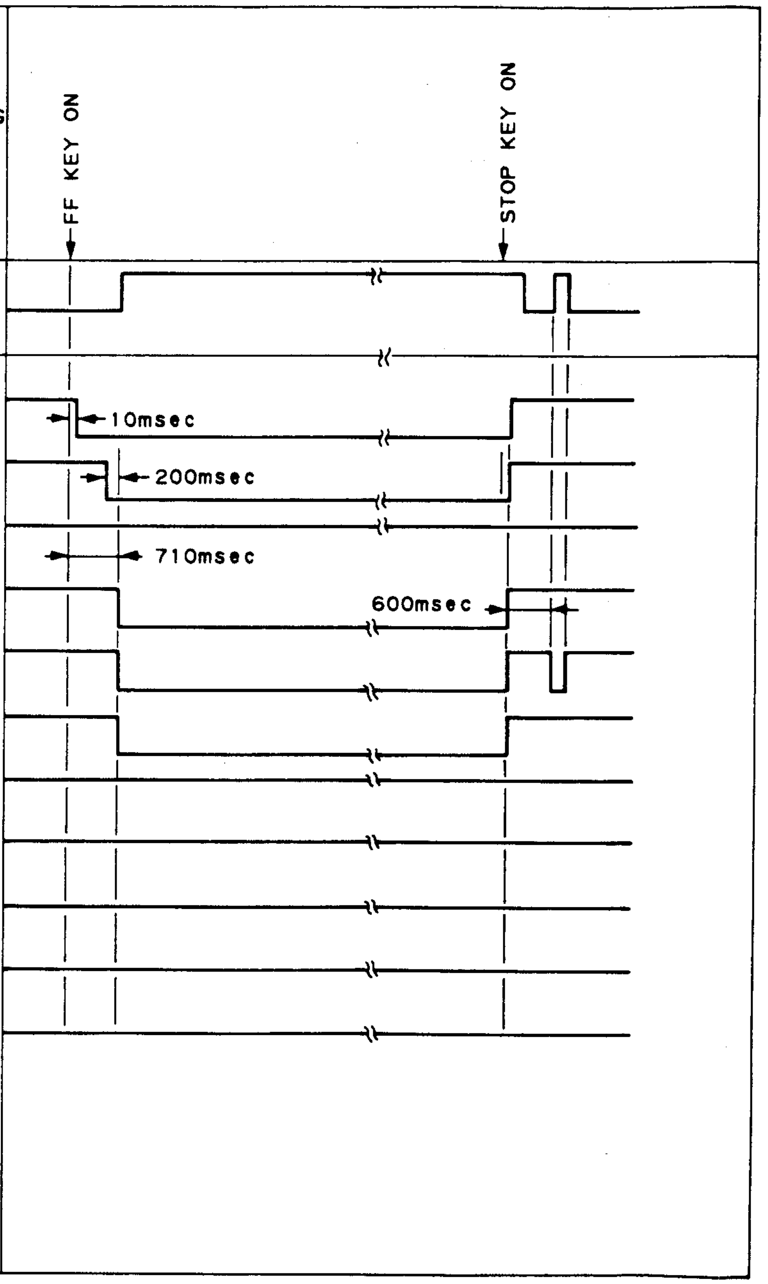
2. UNTHREADING OPERATION (FR STOP POSITION → FR UNTHREAD END POSITION → CASSETTE UP)


EJECT KEY ON
FR UNTHREAD POSITION
CASSETTE UP POSITION
CASSETTE IS PUSHED OUT
510msec
200msec
1.2sec

	SIGNAL	LABEL NUMBER ON DIAGNOSTICS	MEASURING POINT
INPUT	L : FR UNTHREAD END	08 — DIGIT 2	IC7-19
	H : CASSETTE DOWN	08 — DIGIT 3	IC7-18
	H : CASSETTE IN	08 — DIGIT 4	IC7-17
OUTPUT	FWD / $\overline{\text{REV}}$	00 — DIGIT 1	IC7-41
	NORMAL / $\overline{\text{SEARCH}}$	00 — DIGIT 2	IC7-40
	H : DRUM STOP	01 — DIGIT 1	IC7-45
	L : SKEW SOL.ON	02 — DIGIT 2	IC7-48
	L : SEARCH SOL.ON	04 — DIGIT 2	IC7-23
	L : PINCH SOL.ON	04 — DIGIT 3	IC7-22
	L : T-BRAKE SOL.ON	05 — DIGIT 1	IC7-37
	L : S-BRAKE SOL.ON	05 — DIGIT 2	IC7-36
	L : T-IDLER SOL.ON	05 — DIGIT 3	IC7-35
	L : S-IDLER SOL.ON	05 — DIGIT 4	IC7-34
	L : C.C.UP	07 — DIGIT 1	IC7-16
	L : C.C.DOWN	07 — DIGIT 2	IC7-15
	L : THREAD MOTOR ON	07 — DIGIT 3	IC7-14
	L : UNTHREAD MOTOR ON	07 — DIGIT 4	IC7-13
			ON SY BOARD

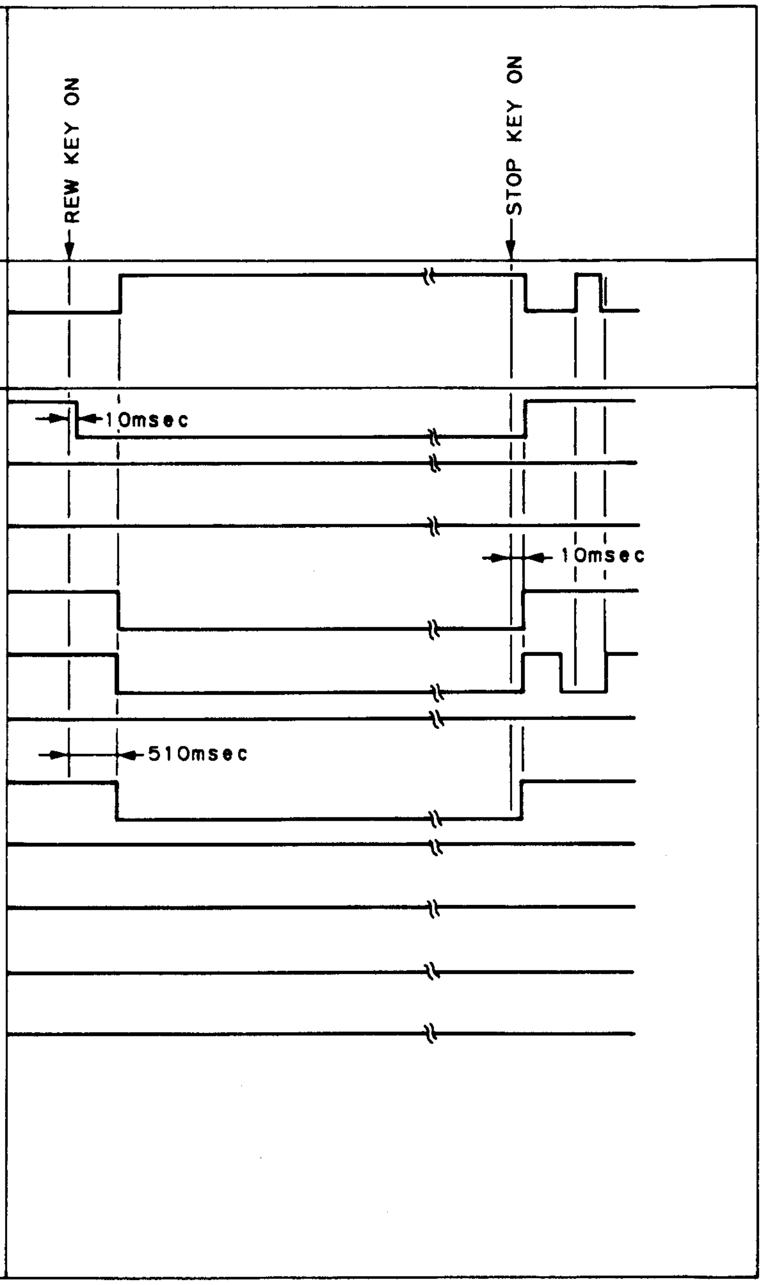
3. FF MODE (FR STOP → FF → FR STOP)

	SIGNRL	LABEL NUMBER ON DIAGNOSTICS	MEASURING POINT
INPUT	L : REEL STOP	09 — DIGIT 2	
OUTPUT	H : DRUM STOP	01 — DIGIT 1	IC7-45
	L : SEARCH SOL.ON	04 — DIGIT 2	IC7-23
	L : PINCH SOL.ON	04 — DIGIT 3	IC7-22
	L : T-BRAKE SOL.ON	05 — DIGIT 1	IC7-37
	L : S-BRAKE SOL.ON	05 — DIGIT 2	IC7-36
	L : T-IDLER SOL.ON	05 — DIGIT 3	IC7-35
	L : S-IDLER SOL.ON	05 — DIGIT 4	IC7-34
	L : C.C.UP	07 — DIGIT 1	IC7-16
	L : C.C.DOWN	07 — DIGIT 2	IC7-15
	L : THREAD MOTOR ON	07 — DIGIT 3	IC7-14
	L : UNTHREAD MOTOR ON	07 — DIGIT 4	IC7-13
			ON SY BOARD


FF KEY ON
STOP KEY ON
10msec
200msec
710msec
600msec

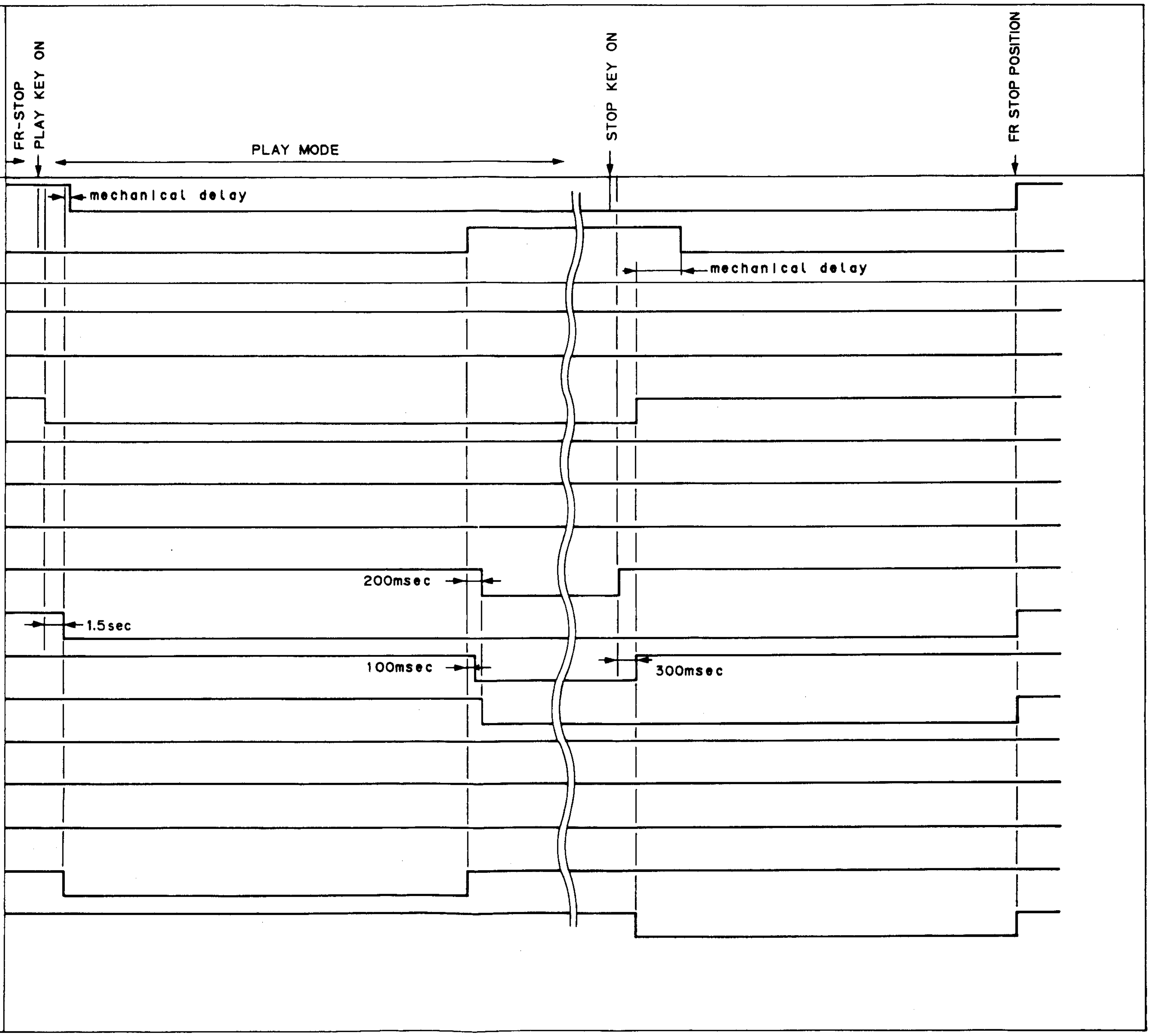
4. REW MODE (FR STOP → REW → FR STOP)

	SIGNAL	LABEL NUMBER ON DIAGNOSTICS	MEASURING POINT
INPUT	L : REEL STOP	09 — DIGIT 2	
OUTPUT	H : DRUM STOP	01 — DIGIT 1	IC7-45
	L : SEARCH SOL.ON	04 — DIGIT 2	IC7-23
	L : PINCH SOL.ON	04 — DIGIT 3	IC7-22
	L : T-BRAKE SOL.ON	05 — DIGIT 1	IC7-37
	L : S-BRAKE SOL.ON	05 — DIGIT 2	IC7-36
	L : T-IDLER SOL.ON	05 — DIGIT 3	IC7-35
	L : S-IDLER SOL.ON	05 — DIGIT 4	IC7-34
	L : C.C. UP	07 — DIGIT 1	IC7-16
	L : C.C. DOWN	07 — DIGIT 2	IC7-15
	L : THREAD MOTOR ON	07 — DIGIT 3	IC7-14
	L : UNTHREAD MOTOR ON	07 — DIGIT 4	IC7-13
			ON SY BOARD



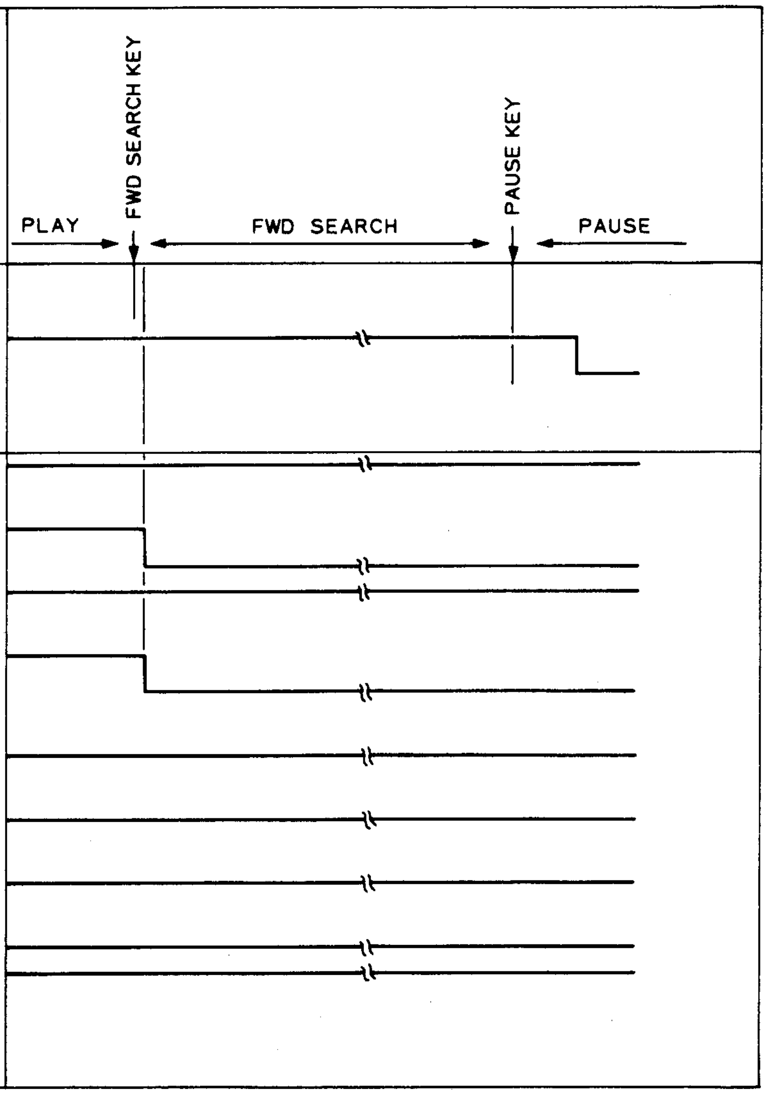
5. PLAY MODE (FR STOP → PLAY → FR STOP)

	SIGNAL	LABEL NUMBER ON DIAGNOSTICS	MEASURING POINT
INPUT	L : THREAD END	0L — DIGIT 4	IC7-5
	L : UNTHREAD END	0L — DIGIT 3	IC7-6
OUTPUT	FWD / $\overline{\text{REV}}$	00 — DIGIT 1	IC7-41
	NORMAL / $\overline{\text{SEARCH}}$	00 — DIGIT 2	IC7-40
	H : DRUM STOP	01 — DIGIT 1	IC7-45
	L : SKEW SOL.ON	02 — DIGIT 2	IC7-48
	H : REEL STILL	03 — DIGIT 3	IC7-58
	L : SEARCH SOL.ON	04 — DIGIT 2	IC7-23
	L : PINCHH SOL.ON	04 — DIGIT 3	IC7-22
	L : T-BRAKE SOL.ON	05 — DIGIT 1	IC7-37
	L : S-BRAKE SOL.ON	05 — DIGIT 2	IC7-36
	L : T-IDLER SOL.ON	05 — DIGIT 3	IC7-35
	L : S-IDLER SOL.ON	05 — DIGIT 4	IC7-34
	L : C.C UP	07 — DIGIT 1	IC7-16
	L : C.C DOWN	07 — DIGIT 2	IC7-15
	L : THREAD MOTOR ON	07 — DIGIT 3	IC7-14
	L : UNTHREAD MOTOR ON	07 — DIGIT 4	IC7-13
			ON SY BOARD


FR-STOP
PLAY KEY ON
PLAY MODE
STOP KEY ON
FR STOP POSITION
mechanical delay
mechanical delay
200msec
1.5sec
100msec
300msec

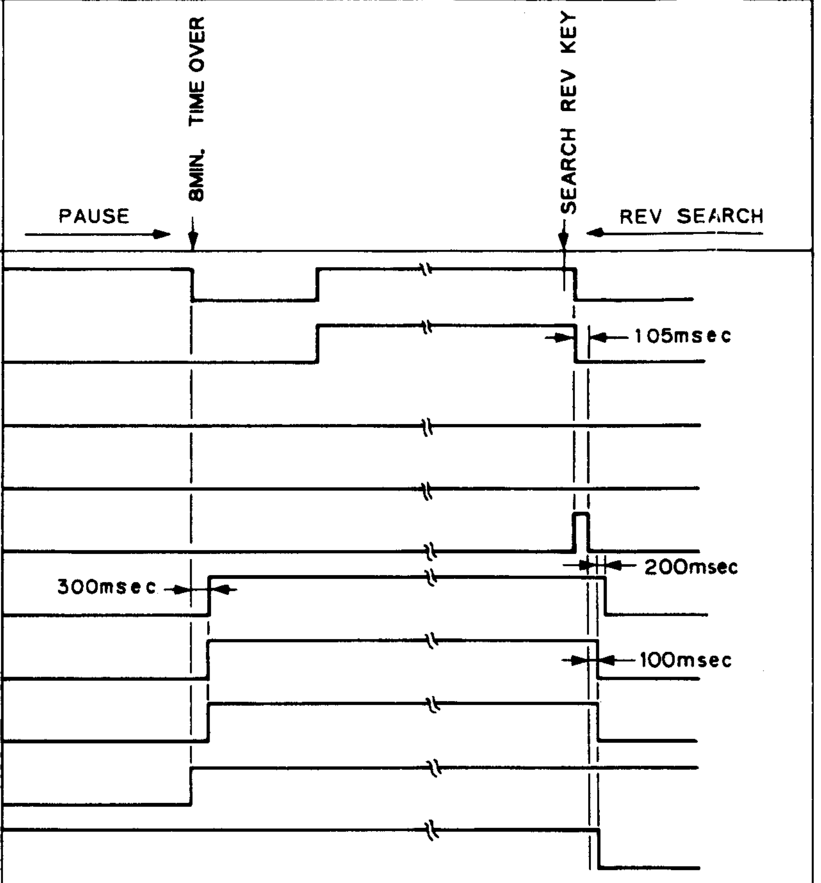
6. PLAY → FWD SEARCH → SEARCH PAUSE

	SIGNAL	LABEL NUMBER ON DIAGNOSTICS	MEASURING POINT
INPUT	L : CAPSTAN STOP	OL — DIGIT 1	IC7-8
OUTPUT	FWD / $\overline{\text{REV}}$	00 — DIGIT 1	IC7-41
	NORMAL / $\overline{\text{SEARCH}}$	00 — DIGIT 2	IC7-40
	H : REEL STILL	03 — DIGIT 3	IC7-58
	L : SEARCH SOL.ON	04 — DIGIT 2	IC7-23
	L : PINCH SOL.ON	04 — DIGIT 3	IC7-22
	L : T-BRAKE SOL.ON	05 — DIGIT 1	IC7-37
	L : S-BRAKE SOL.ON	05 — DIGIT 2	IC7-36
	L : T-IDLER SOL.ON	05 — DIGIT 3	IC7-35
	L : S-IDLER SOL.ON	05 — DIGIT 4	IC7-34
			ON SY BOARD



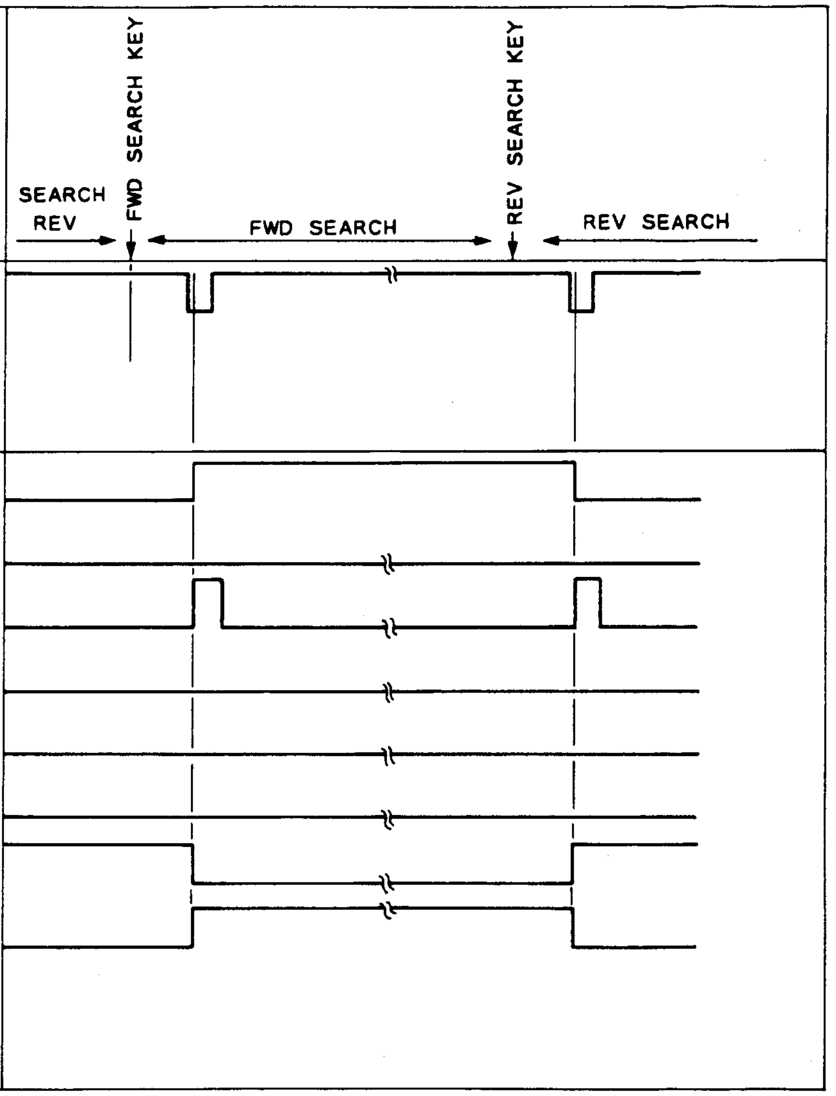
7. PLAY PAUSE → LONG PAUSE → REV SEARCH

	SIGNAL	LABEL NUMBER ON DIAGNOSTICS	MEASURING POINT
OUTPUT	FWD / $\overline{\text{REV}}$	00 — DIGIT 1	IC7-41
	NORMAL / $\overline{\text{SEARCH}}$	00 — DIGIT 2	IC7-40
	H : DRUM STOP	01 — DIGIT 1	IC7-45
	H : REEL STILL	03 — DIGIT 3	IC7-58
	L : SEARCH SOL.ON	04 — DIGIT 2	IC7-23
	L : PINCH SOL.ON	04 — DIGIT 3	IC7-22
	L : T-BRAKE SOL.ON	05 — DIGIT 1	IC7-37
	L : S-BRAKE SOL.ON	05 — DIGIT 2	IC7-36
	L : T-IDLER SOL.ON	05 — DIGIT 3	IC7-35
	L : S-IDLER SOL.ON	05 — DIGIT 4	IC7-34
			ON SY BOARD


8MIN. TIME OVER
SEARCH REV KEY
PAUSE
REV SEARCH
105msec
200msec
300msec
100msec

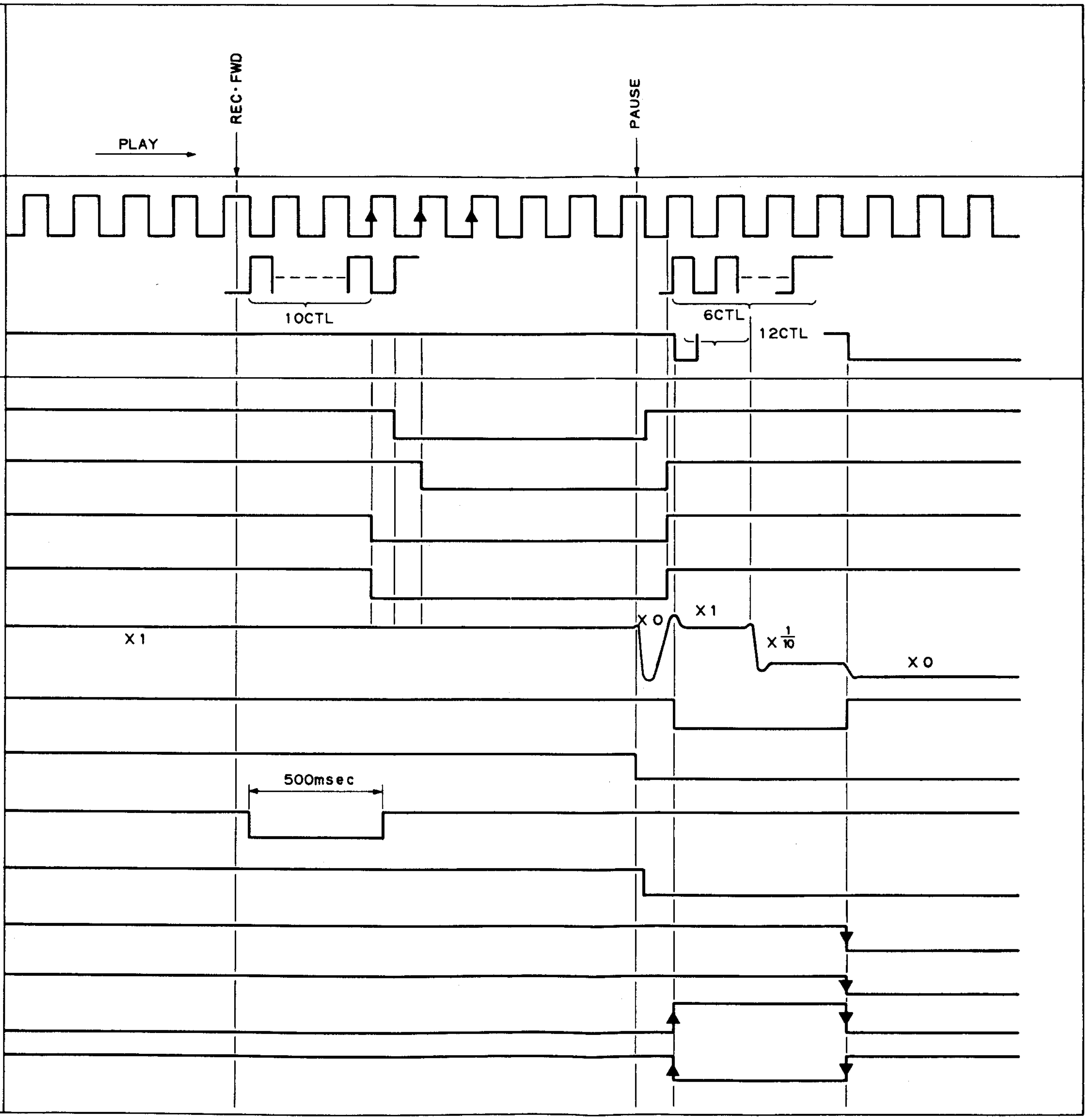
8. REV SEARCH → (FWD PAUSE) → FWD SEARCH → (FWD PAUSE) → REV SEARCH

	SIGNAL	LABEL NUMBER ON DIAGNOSTICS	MEASURING POINT
INPUT	L : CAPSTAN STOP	OL — DIGIT 1	IC7-8
OUTPUT	FWD / $\overline{\text{REV}}$	00 — DIGIT 1	IC7-41
	NORMAL / $\overline{\text{SEARCH}}$	00 — DIGIT 2	IC7-40
	H : REEL STILL	03 — DIGIT 3	IC7-58
	L : SEARCH SOL.ON	04 — DIGIT 2	IC7-23
	L : T-BRAKE SOL.ON	05 — DIGIT 1	IC7-37
	L : S-BRAKE SOL.ON	05 — DIGIT 2	IC7-36
	L : T-IDLER SOL.ON	05 — DIGIT 3	IC7-35
	L : S-IDLER SOL.ON	05 — DIGIT 4	IC7-34
			ON SY BOARD


FWD SEARCH KEY
REV SEARCH KEY
SEARCH REV
FWD SEARCH
REV SEARCH

9. FWD → (DUB FWD) → REC FWD → REC FWD PAUSE

	SIGNAL	LABEL NUMBER ON DIAGNOSTICS	MEASURING POINT
INPUT	1/2VD		IC7-3
	PB CTL		IC7-28
	L : CAPSTAN STOP	0L—DIGIT 1	IC7-8
OUTPUT	L : VIDEO CH-B REC	02—DIGIT 3	IC7-47
	L : VIDEO CH-A REC	02—DIGIT 4	IC7-46
	L : AUDIO CH-1 REC	01—DIGIT 4	IC7-42
	L : AUDIO CH-2 REC	01—DIGIT 3	IC7-43
	CAPSTAN SPEED	————	————
	FWD/$\overline{\text{REV}}$	00—DIGIT 1	IC7-41
	NORMAL/$\overline{\text{SEARCH}}$	00—DIGIT 2	IC7-40
	L : SKEW SOL. ON	02—DIGIT 2	IC7-48
	L : SEARCH SOL. ON	04—DIGIT 2	IC7-23
	L : T-BRAKE SOL. ON	05—DIGIT 1	IC7-37
	L : S-BRAKE SOL. ON	05—DIGIT 2	IC7-36
	L : T-IDLER SOL. ON	05—DIGIT 3	IC7-35
	L : S-IDLER SOL. ON	05—DIGIT 4	IC7-34


PLAY
REC·FWD
PAUSE
10CTL
6CTL
12CTL
X1
X0
X1
X $\frac{1}{10}$
X0
500msec

SECTION 3
PERIODIC CHECK AND MAINTENANCE

It is recommended that you carry out the following periodic checks and maintenances in order to obtain good performance and ensure a long life for the unit and tape according to the Hours Meter of the Front Panel.

3-1. MAINTENANCE AFTER REPAIR

Carry out the following maintenance after repair without regard to the operational hours of the unit.

(1) Cleaning Video Head
  - Turn the Drum slowly using a hand after pressing a cleaning piece moistened with cleaning fluid to the drum. Never turn the motor by means of the unit is switched.
  - Never move the cleaning piece in vertical direction. You might damage the head tips.

(2) Cleaning Tape Path System
  - Clean tape bearing surfaces such as Tape Guides, Drum, Capstan, and Pinch Roller using the cleaning piece moistened with cleaning fluid.

(3) Cleaning Drive System
  - Clean drive system such as Belt, Idler, and Reel Table surface using the cleaning piece moistened with cleaning fluid.

3-2. PERIODIC CHECK

Carry out the periodic check and maintenance according to the operational hours of the unit.

3-3. HOURS METER

Press continuously RESET button more than 2 seconds after selecting PROGRAM OPERATION switch to $\underset{B}{\overset{A}{\circlearrowright}}$ button. The Time Counter on the Front Panel displays the total rotation time of the Video Head.

3-4. OTHERS

(1) Sony Oil
  - Be sure to use Sony Oil. If any other make of oil is used, it is possible to cause trouble because it may no have the correct viscosity.
  - Be sure to use only clean Sony Oil. If the oil is contaminated with dust or other particles it is possible to cause bearings to seize of wear excessively.
    Sony Oil: Part No. 7-661-018-01

(2) Sony Grease
Be sure to use Sony Grease.
Sony Grease: Part No. 7-662-001-62 (SGL-501)

(3) Overhauling
When overhauling, replace parts in the chart on page 3-2. For parts not in the list such as Motors and Heads, refer the following items. It suppose the usually state of use.

  - Reel Motor: about 3,000 H
  - Capstan Motor: about 3,000 H
  - Threading Motor: about 30,000 items
  - Cassette-up Compartment Motor: about 30,000 items
  - Audio/CTL Head: about 3,000 H
  - CTL Head: about 3,000 H

■ : Apply oil ○ : Cleaning ◆: Replace ◇ : Check ◎: Apply grease

	Operating Hours (H)		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	Remarks
	Item	Part No. of Replacement Parts											
Tape Path	Tape Path cleaning	———	○	○	○	○	○	○	○	○	○	○	*NOTE 1
	Cleaning and replacement of the Video Head	A-6709-714-A	○	◆	○	◆	○	◆	○	◆	○	◆	*NOTE 2
	Replacement of Pinch Roller	A-6750-226-A	○	◆	○	◆	○	◆	○	◆	○	◆	*NOTE 3
Drive System	Replacement of the F FWD/REW Idler Belt	3-668-785-00	○	○	○	◆	○	○	○	◆	○	○	———
	Replacement of the Reel Table	A-6739-017-B	○	■	○	◆	○	■	○	◆	○	■	
	Replacement of R Brake Shoe	X-3668-737-0	—	—	—	◆	—	—	—	◆	—	—	
	Replacement of Brake Band	X-3668-707-0	—	—	—	◆	—	—	—	◆	—	—	
	Replacement of Belt on Gear Box	3-672-737-01	○	○	○	○	○	○	○	◆	○	○	———
	Replacement of Belt on Cassette-up Compartment	3-653-387-00	○	○	○	○	○	○	○	◆	○	○	———
	Cleaning the Threading Roller Shaft on the Threading Ring	———	—	○	—	○	—	○	—	○	—	○	*NOTE 4
	Apply a Grease on the Ring Rollers	———	—	◎	—	◎	—	◎	—	◎	—	◎	*NOTE 5
Performance Check	Check the FWD Back Tension	———	—	◇	—	◇	—	◇	—	◇	—	◇	*NOTE 6
	Check the FWD Torque	———	—	◇	—	◇	—	◇	—	◇	—	◇	*NOTE 7
	Check the REV Torque	———	—	◇	—	◇	—	◇	—	◇	—	◇	*NOTE 8
	Check the Brake Torque	———	—	—	—	◇	—	◇	—	◇	—	◇	*NOTE 9

*NOTE 1 : Be sure to clean the tape path surface in repairing. Refer to Section 3-1.
*NOTE 2 : The time of the video heads replacement will differ with operating environment. Refer to Section 3-1.
*NOTE 3 : The time of the pinch roller replacement will differ with operating environment. Refer to Section 3-1.
*NOTE 4 : Clean the threading roller shaft on the threading ring using a cloth moistened with cleaning fluid. Refer to Section 4-6.
*NOTE 5 : Apply grease on the ring roller surface.

*NOTE 6 : Refer to Section 6-6.
*NOTE 7 : Refer to Section 6-3.
*NOTE 8 : Refer to Section 6-4.
*NOTE 9 : Refer to Section 6-1.

SECTION 4
REPLACEMENT OF MAJOR PART

4-1. REPLACEMENT OF UPPER DRUM

- Video Heads cannot be replaced as a single parts. Replace the whole Upper Drum Assembly.

Tool: Drum Eccentricity Gauge (1)
Drum Eccentricity Gauge (2)
Drum Eccentricity Gauge (3)
Drum Eccentricity Gauge (4)
Cleaning Fluid

Replacement procedure:

(1) Unsolder the 4 leads of the Video Head from printed circuit board. Remove 2 fixing screws, and remove the Upper Drum Assembly.

(2) Clean the contact surfaces of flange and new Upper Drum Assembly using a cloth moistened with cleaning fluid. If there is a spacer between Drum and flange, it should be left on the flange. If the spacer is lost, correct interchangeability cannot be obtained.

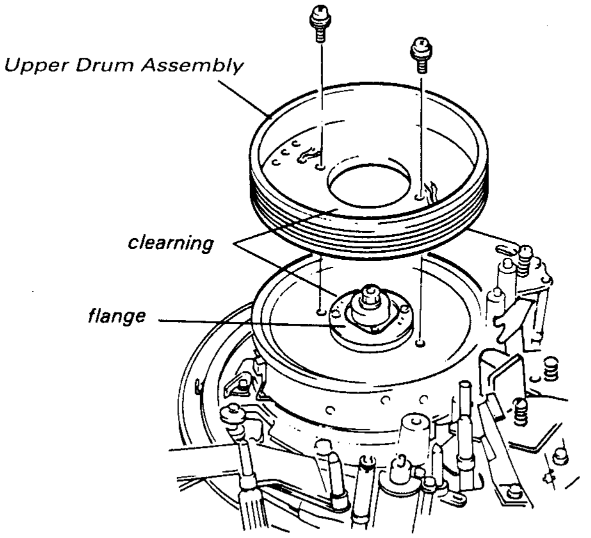
(3) Place the Upper Drum Assembly on the Drum Assembly shown in the figure. Thread the 2 fixing screws but do not tighten them.

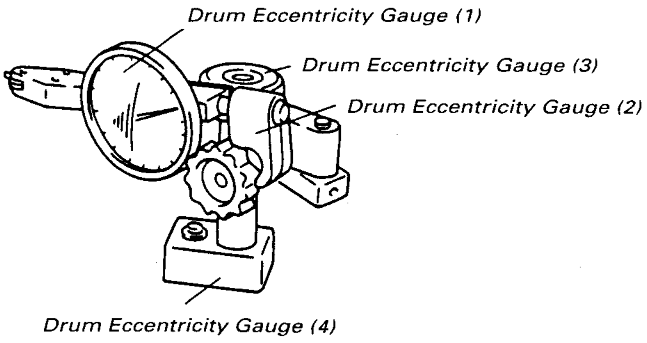
Adjustment procedure:

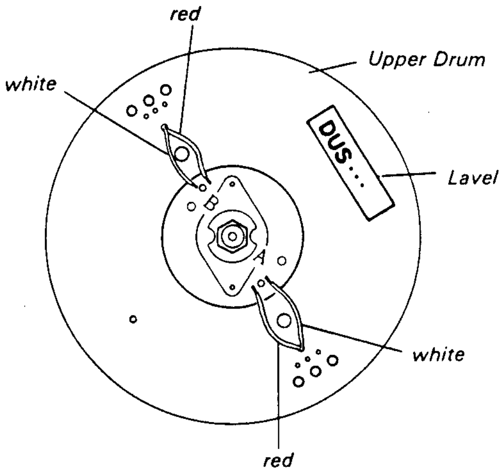
(1) Remove S Guard Block. Take care that the connector of the S Guard connects onto the chassis.

(2) Assemble the Drum Eccentricity Gauges (1) through (4) as shown in the figure. Install it on the unit so that probe tip is situated at about 5 mm from the top edge of the Upper Drum.

(3) Turn slowly the Upper Drum clockwise, and check the gauge deflection is within 5 microns during one complete revolution of the Upper Drum. If it is within the specification, proceed with the Step (5). If it is out the specification, carry out Step (4).


Upper Drum Assembly
clearning
flange


Drum Eccentricity Gauge (1)
Drum Eccentricity Gauge (3)
Drum Eccentricity Gauge (2)
Drum Eccentricity Gauge (4)


red
Upper Drum
white
DUS...
Lavel
B
A
white
red

(4) Tap the inside of the Upper Drum using a hammer or screwdriver handle until the gauge deflection is within 5 microns.

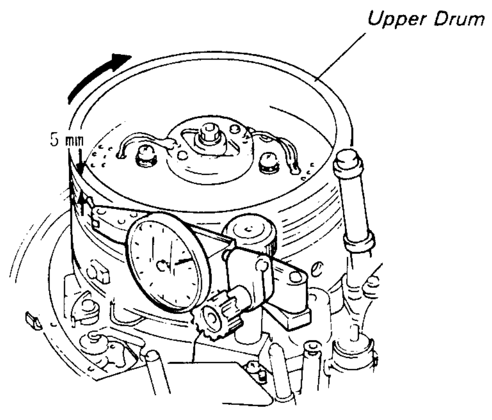
(5) Tighten alternately the 2 fixing screws of the Upper Drum after the adjustment.
Threading Torque: 14 to 16 kg.cm.

(6) Check the gauge deflection is within 5 microns after tightening the screws.

(7) Solder 4 leads from the Video Head to the printed circuit board as shown in the figure.

(8) Install the S Guard Block. Connect securely the connector at the S Guard Block onto the chassis.

(9) Carry out the adjustment referring to Section 4-11.



4-2. REPLACEMENT OF DRUM ASSEMBLY

Replacement procedure:

(1) Remove Shield Plate.

(2) Disconnect 3 connectors of the Drum.

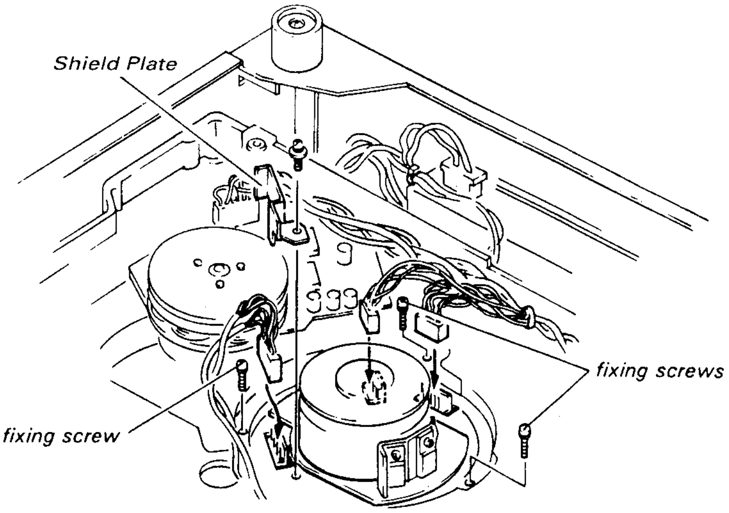
(3) Remove 3 fixing screws holding the Drum.

(4) Replace the Drum with a new one. Tighten the fixing screws turning the Drum clockwise.

(5) Connect 3 connectors of the Drum.

(6) Tighten the fixing screw of the Shield Plate.
Install the Shield Plate with the fixing screws.

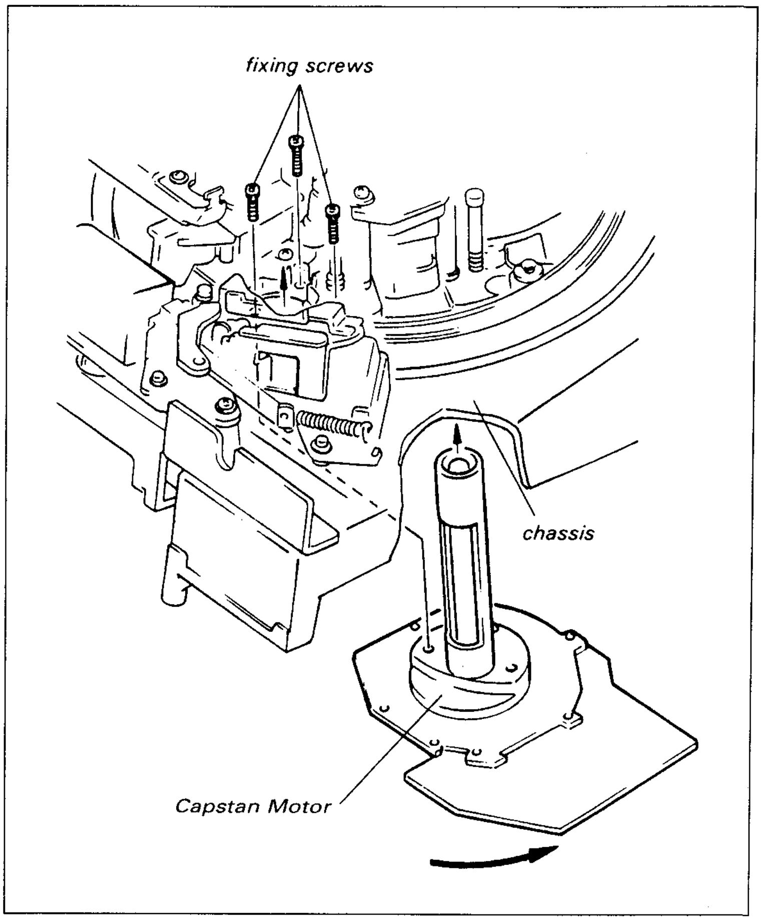
(7) Carry out the adjustment referring to Section 4-11.



4-3. REPLACEMENT OF CAPSTAN MOTOR

Replacement procedure:

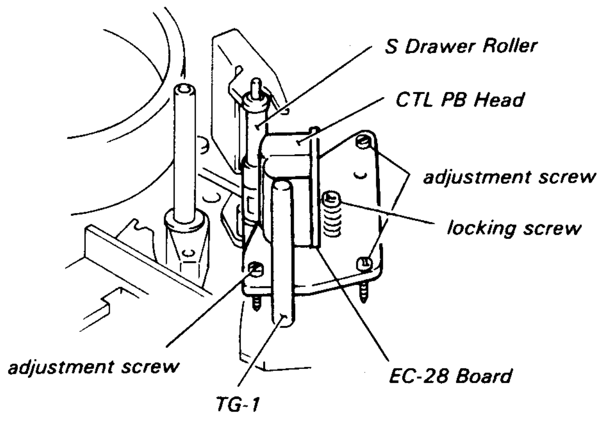
1. Remove Capstan Motor.
2. Replace the Capstan Motor with a new one, and thread 3 fixing screws but do not tighten them.
3. Tighten the fixing screws turning the Capstan Motor in the direction of the arrow.
4. Carry out the adjustment referring to Section 4-11.


fixing screws
chassis
Capstan Motor

4-4. REPLACEMENT OF CTL HEAD

Replacement procedure:

1. Disconnect CN341 on EC-28 Board.
2. Remove a locking screw, and remove CTL PB Head Block. Never tighten or loosen 3 fixing screws.
3. Remove 2 fixing screws at the bottom of the bracket, and remove CTL Head.
4. Remove EC-28 Board from the CTL Head, and solder it to new CTL Head.
5. Carry out the adjustment referring to Section 4-11.


S Drawer Roller
CTL PB Head
adjustment screw
locking screw
adjustment screw
TG-1
EC-28 Board

4-5. REPLACEMENT OF S DRAWER ROLLER

Replacement procedure:

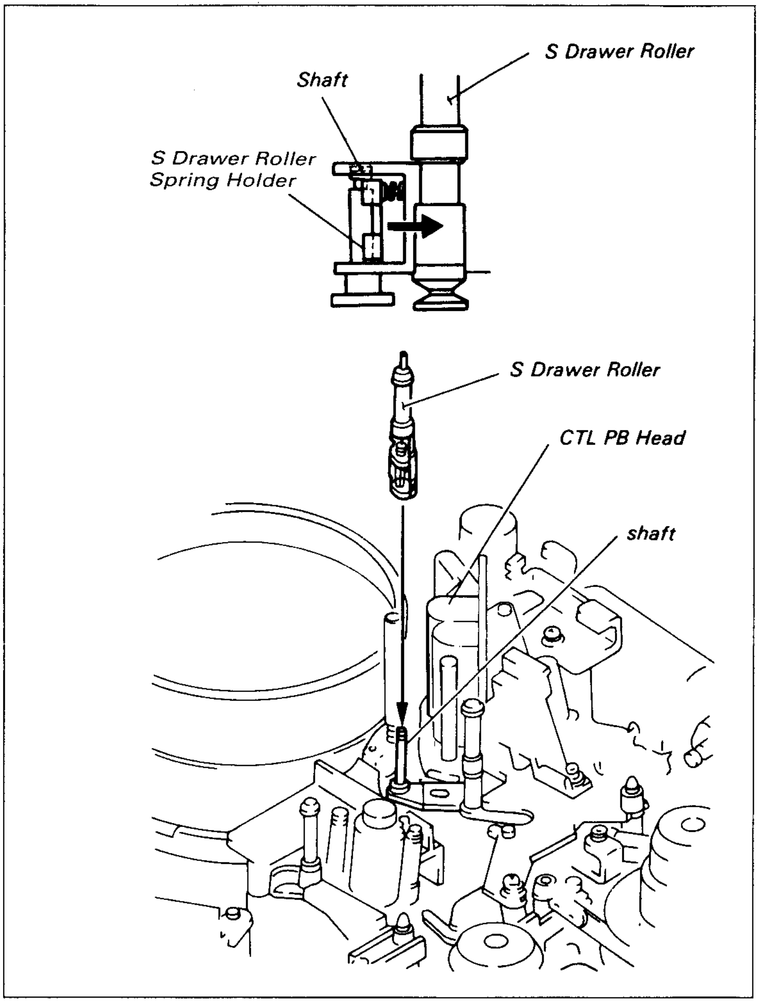
(1) Select the unit into the EJECT completion mode without a cassette tape.

(2) Turn the pulley of Gear Box using a hand until S Drawer Roller is situated in front of the CTL PB Head.

(3) Remove S Drawer Roller from shaft pushing S Drawer Roller Spring Holder in the direction of the arrow.

(4) Smear a little Sony Grease in the notch at the bottom of new S Drawer Roller.

(5) Install new S Drawer Roller onto the shaft until the S Drawer Roller locks to the shaft pushing the S Drawer Spring Holder in the direction of the arrow.


S Drawer Roller
Shaft
S Drawer Roller Spring Holder
S Drawer Roller
CTL PB Head
shaft

4-6. REPLACEMENT/ADJUSTMENT OF TAPE GUIDES ON THE THREADING RING

- There are 3 Tape Guides on the Threading Ring. This Section describes the replacement of the 3 Tape Guides, and the width adjustment of the 2 tape guides.

Tool: Slide Vernier Calipers of Equivalent
L-shaped Hexagonal Wrench
(across flat has 1.27 mm)

Replacement procedure:

(1) Loosen the set screw of projection, and remove Guide Shaft.

(2) Clean the Guide Shaft using a cloth moistened with cleaning fluid.

(3) Assemble the parts.

(4) Adjust the height of Sub-ring Guide as shown in the figure.

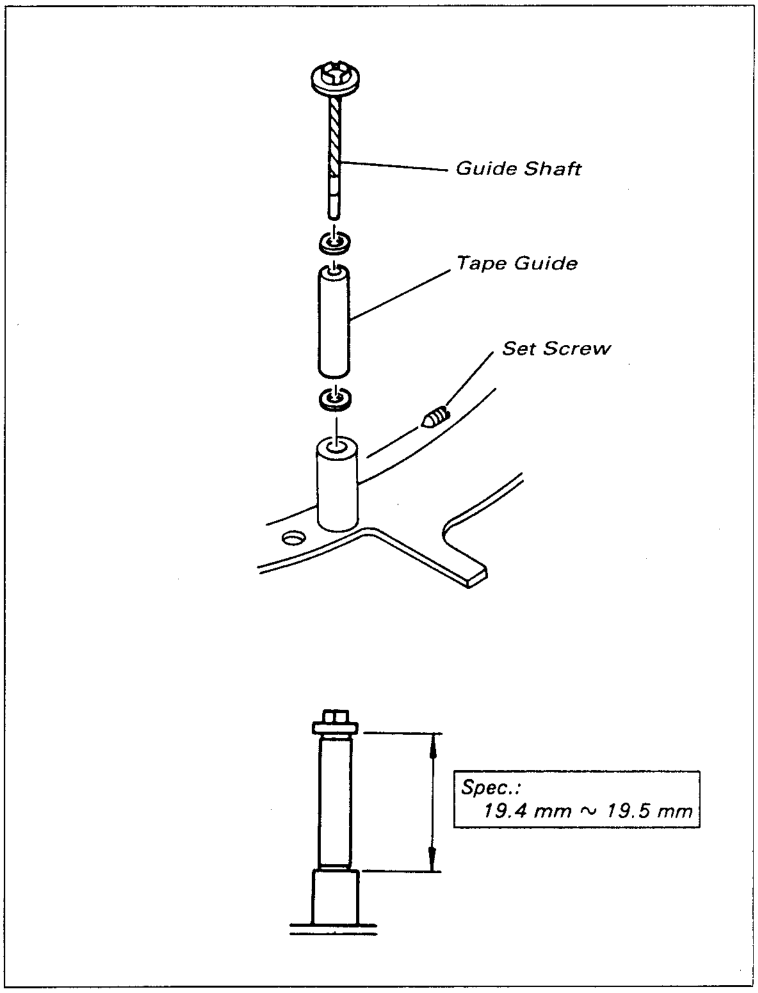
(5) Carry out the adjustment referring to Section 4-11.

Adjustment procedure:

(1) Adjust the height of the Tape Guide, and tighten the Set Screw of the projection. Check that Guide Roller turns smoothly.

(2) Select the unit into the PLAY mode with a cassette tape. Check that the tape runs along the upper flange of the Tape Guide without curling.

(3) Carry out the adjustment referring to Section 4-11.



4-7. REPLACEMENT OF AUDIO/CTL HEAD

Replacement procedure:

(1) Remove Audio/CTL Head Block after removing 3 fixing screws as shown in the figure.

(2) Remove the Audio/CTL Head, and Shield Cases (F and B) after removing 2 fixing screws as shown in the figure.

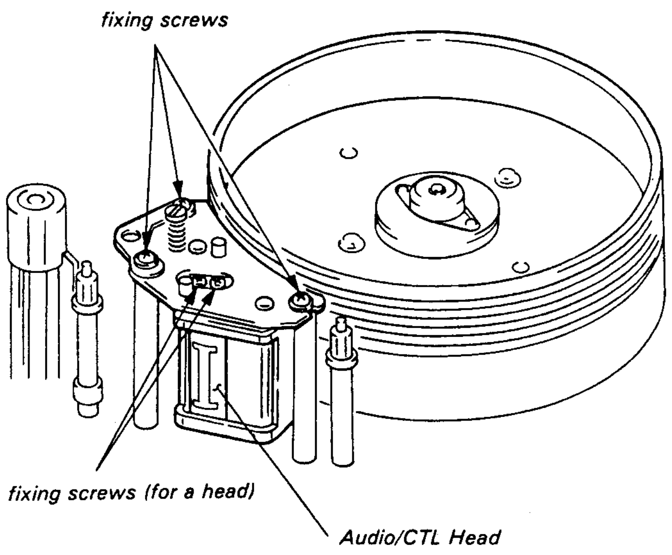
(3) Remove 2 fixing screws from the shield cases.

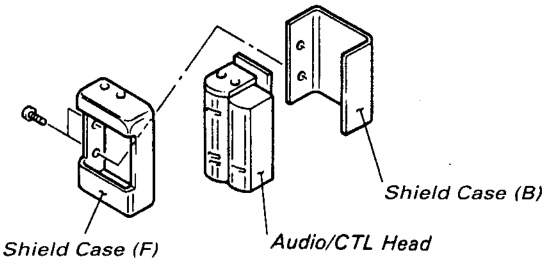
(4) Unsolder 10 leads from the printed circuit board, and remove DUS-92 Board.

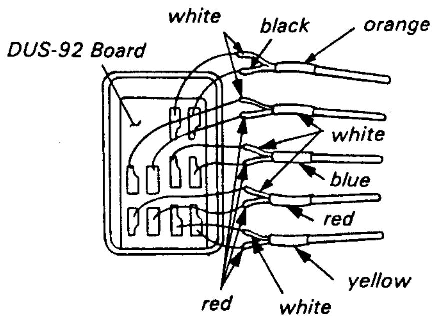
(5) Replace the Audio/CTL Head with a new one, and solder 4 leads to DUS-92 Board as shown in the figure.

(6) Carry out Steps (1) to (3) in reverse order.

(7) Adjust referring to Section 4-11.


fixing screws
fixing screws (for a head)
Audio/CTL Head


Shield Case (B)
Shield Case (F)
Audio/CTL Head


white
black
orange
DUS-92 Board
white
blue
red
yellow
red
white

4-8. REPLACEMENT OF THREADING RING

Replacement procedure:

(1) Remove E Head Base Block from the unit after removing 3 fixing screws.

(2) Remove S Guard Assembly, and the FR Detector.

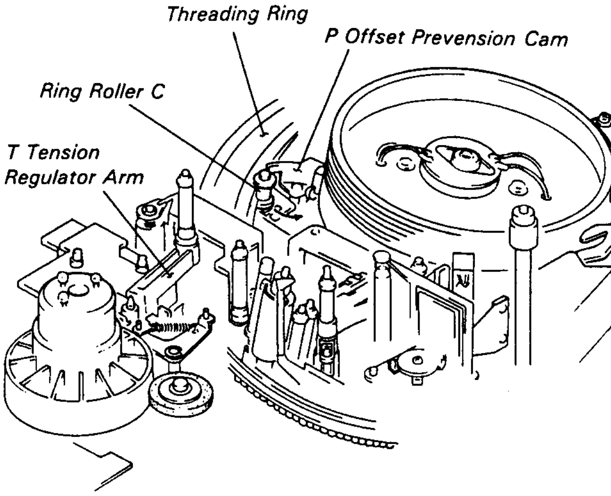
(3) Loosen 2 fixing screws from Threading Gear Block, and release the engagement between the Threading Gear Block and Threading Ring.

(4) Loosen a fixing screw, and move Ring Roller (C) and P Offset Prevention Cam in the direction of the arrow.

(5) Remove Threading Ring, and replace the Threading Ring with a new one.

(6) Carry out Steps (1) to (4) in reverse order.

(7) Carry out the adjustment referring to Section 4-11.


Threading Ring
P Offset Prevension Cam
Ring Roller C
T Tension
Regulator Arm

4-9. REPLACEMENT OF PINCH ROLLER

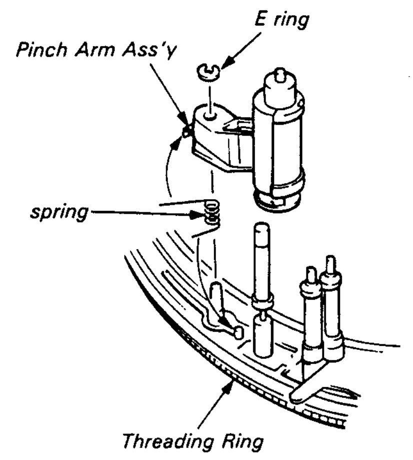
(1) Turn the pulley of the Gear Box Block until the S Drawer Roller is situated in front of the CTL PB Head using a hand.

(2) Remove Pinch Arm Assembly from the Threading Ring after removing E ring.

(3) Replace Pinch Roller Assembly on the Threading Ring with a new one as shown in the figure.

(4) Install the Pinch Roller Assembly to the Threading Ring as shown in the figure.

(5) Carry out the adjustment referring to Section 4-11.



4-10. REPLACEMENT OF THREADING GEAR BOX SYSTEM

4-10-1. Replacement of Threading Gear Box

Replacement procedure:

(1) Select the unit into the EJECT mode, and turn the POWER OFF.

(2) Remove T Tape Sensor from the Gear Box after removing 2 fixing screws.

(3) Remove the 2 fixing screws of the Gear Box after pulley turns 1 revolution in the direction of arrow A. Move the Gear Box in the direction of arrow B, and remove it.

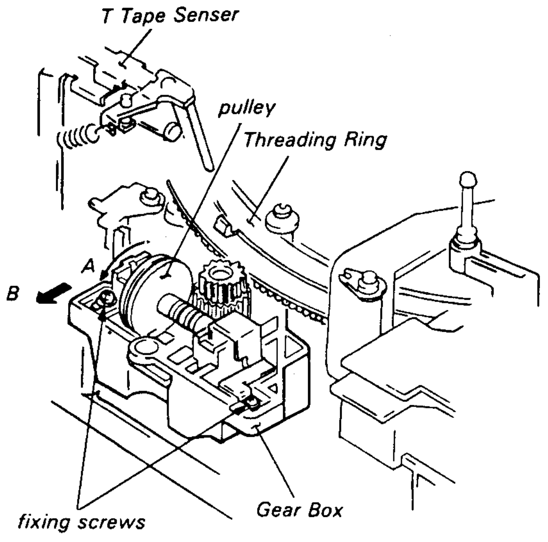
(4) Remove harness from clamper, and disconnect CN511 on SY-106A Board.

(5) Replace the Gear Box with a new one.

(6) Carry out Steps (3) and (4) in reverse order.

(7) Install the Gear Box on the chassis with 2 fixing screws but do not tighten them. Tighten the 2 fixing screws of the Gear Box after engaging the Threading Ring to the gear.

(8) Carry out the adjustment referring to Section 4-11.



4-10-2. Replacement of Threading Motor

Tool: L-shaped Hexagonal Wrench
(across flat has 1.5 mm)

Replacement procedure:

(1) Carry out Steps (1) to (4) of Section 4-10-1. Replacement of Threading Gear Box.

(2) Remove gear after removing Stop Ring.

(3) Remove belt from Motor Pulley. Remove plate from the frame after removing a fixing screw.

(4) Remove pulley while pushing a hook in the direction of the arrow as shown in the figure.

(5) Remove Motor Block from the frame after removing 2 fixing screws.

(6) Loosen a set screws, and remove the Motor Pulley.

(7) Remove the Motor from the Motor Bracket after removing the 2 fixing screws.

(8) Remove Shield Case, and unsolder LM-13 Board. Replace the Motor with a new one.

(9) Solder the plus terminal of the Motor to the plus pad of LM-13 Board as shown in the figure.

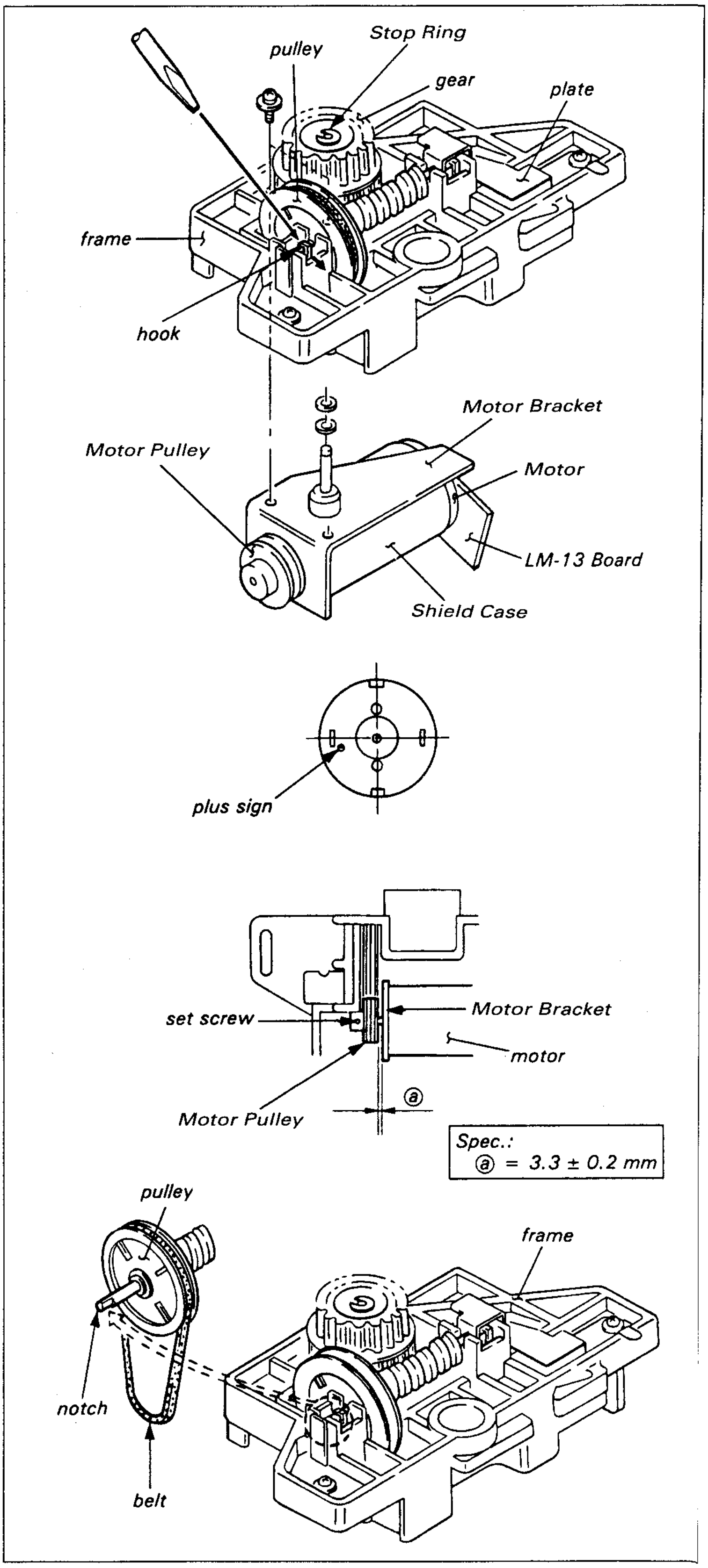
(10) Install the shield case to the Motor.

(11) Install the Motor to the frame as shown in the figure. Carry out Steps (4) to (6) in reverse order. Check that the clearance between Motor Pulley and Bracket meets the required specification.

(12) Install the pulley hooked to the belt onto the frame. Turn the pulley to the notch's direction of pulley shaft as shown in the figure.

(13) Hook the belt to the Motor Pulley. Check that the belt is not twisted.

(14) Carry out the adjustment referring to Section 4-11.


pulley
Stop Ring
gear
plate
frame
hook
Motor Bracket
Motor Pulley
Motor
LM-13 Board
Shield Case
plus sign
set screw
Motor Bracket
motor
Motor Pulley
ⓐ
pulley
frame
notch
belt

Spec.:
ⓐ = 3.3 ± 0.2 mm

4-10-3. Replacement of Threading Belt

Replacement procedure:

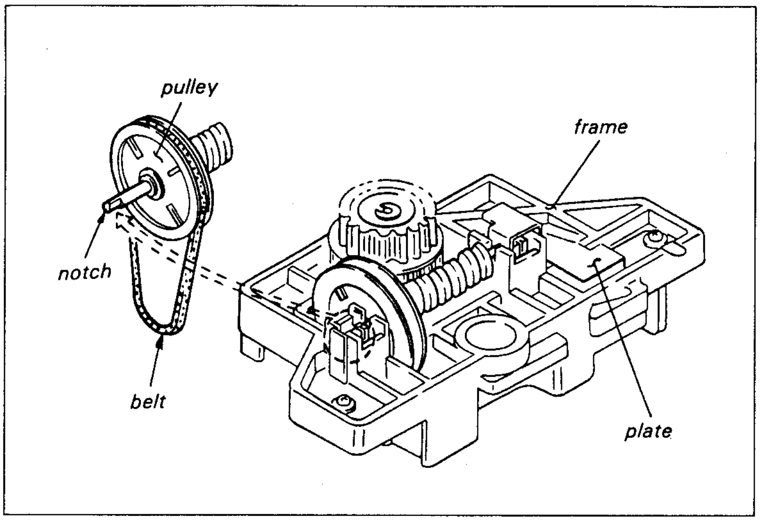
(1) Carry out Steps (1) to (3) in Section 4-10-2. Replacement of Threading Motor.

(2) Clean the new belt, and V groove of the pulley using a cloth moistened with cleaning fluid.

(3) Install the pulley hooked to the belt onto the frame. Turn the pulley to the notch's direction of pulley shaft as shown in the figure.

(4) Hook the belt to the Motor Pulley after installing the plate to the frame. Check that the belt is not twisted.

(5) Carry out the adjustment referring to Section 4-11.



4-11. ADJUSTMENT AFTER MAIN PARTS REPLACEMENT (Numbers in parenthesis mean Section Nos.)

Replacement of Threading Ring
Threading Ring Rotation Adjustment (5-3-1)→Gear Box Position Adjustment (5-3-2)→FR Detector Block Mounting Position Adjustment (5-3-4)→Pinch Roller Position Adjustment (5-3-3)→Pinch Lever Pre-set Adjustment (5-4-1)→Pinch Roller Pre-set Adjustment (5-4-2) Leaf Spring Position Adjustment (5-9)→F FWD/RVS Modes Tape Path Adjustment (7-1)→T Correction Guide Slantness Adjustment (7-2)→Tape Path Adjustment Around Pinch Roller (7-6)→PLAY Mode Tape Path Adjustment (1) (7-3)→PLAY Mode Tape Path Adjustment (2) (7-4)→REV Mode Tape Path Adjustment (7-5)→Video Tracking Adjustment (7-7-1)→CTL PB Head Height/Azimuth/Zenith Adjustments (7-7-2)→Video Tracking Adjustment (check) (7-7-1)

Replacement of Pinch Roller
Pinch Roller Self Alignment Adjustment (5-3-3)→Pinch Roller Pre-set Adjustment (5-4-2)→PLAY Mode Tape Path Adjustment (2) (7-4)→REV Mode Tape Path Adjustment (7-5)→Tape Path Adjustment Around Pinch Roller (7-6)→Video Tracking Adjustment (check) (7-7-1)

Replacement of Take-up Reel Table
Reel Table Height and Vertical Play Adjustment (5-1-2)→T Brake Torque Adjustment (6-1-2)→REW Brake Torque Adjustment (6-1-3)→F FWD/REW Torque Adjustment (6-2)→FWD Torque Adjustment (6-3)→F FWD/REW Modes Tape Path Adjustment (7-1)

Replacement of Supply Reel Table
Reel Table Height and Vertical Play Adjustment (5-1-2)→S Brake Torque Adjustment (6-1-1)→F FWD/REW Torque Adjustment (6-2)→REV Torque Adjustment (6-4)→FF Back Tension Adjustment (6-5)→FWD Back Tension Adjustment (6-6)→Video Tracking Adjustment (check) (7-7-1)

Replacement of Brake Band
FF Back Tension Adjustment (6-5)→FWD Back Tension Adjustment (6-6)

Replacement of Capstan Motor
Pinch Lever Right Angle Adjustment (5-10)→Pinch Roller Self Alignment Adjustment (5-3-3)→Capstan Search Speed Adjustment→Capstan FWD/REV Detector Adjustment→Capstan Free Speed Adjustment→Capstan Stop Servo Adjustment→PLAY Mode Tape Path Adjustment (2) (7-4)→REV Mode Tape Path Adjustment (7-5)→Tape Path Adjustment Around Pinch Roller (7-6)→Video Tracking Adjustment (check) (7-7-1)

Replacement of Threading Motor
Gear Box Position Adjustment (5-3-2)

Replacement of Reel Motor
FWD Torque Adjustment (6-3)→REV Torque Adjustment (6-4)

Replacement of CTL PB Head
CTL PB Head Height/Zenith Adjustments (7-7-2)→Video Tracking Adjustment (check) (7-7-1)

Replacement of Audio/CTL Head
Audio Head Height Adjustment (7-7-3)→Audio Head Azimuth Adjustment (7-7-5)→Video Tracking Adjustment (7-7-1)→Audio Head Height Adjustment (7-7-3)→Audio Head Azimuth Adjustment (7-7-5)→Audio Head Phase Adjustment (7-7-6)→Audio/CTL Head Phase Adjustment (7-7-6)→Audio/CTL Head Position Adjustment (7-7-7)→Audio system Alignment (All of Section 10)

Replacement of Drum Assembly
Tracking Adjustment (7-7)→F FWD/REW Modes Tape Path Adjustment (7-1)→PLAY Mode Tape Path Adjustment (2) (7-4)→REV Mode Tape Path Adjustment (7-5)→Video Head Dihedral Adjustment (7-8)→Drum AFC Level Adjustment Drum AFC Transient Adjustment→Switching Position adjustment

Replacement of Upper Drum Assembly
Replacement of Upper Drum (4-1)→Tracking Adjustment (7-7)→F FWD/REW Modes Tape Path Adjustment (7-1)→PLAY Mode Tape Path Adjustment (2) (7-4)→REV Mode Tape Path Adjustment (7-5)→Video Head dihedral Adjustment (7-8)→PB RF Amplifier Adjustment

SECTION 5
LINK AND DRIVE SYSTEM ALIGNMENT

5-1. REEL TABLE SYSTEM ADJUSTMENT

5-1-1. Cassette Holder Height Adjustment

Tool: Reel Table Height Check Base Tool
Thickness Gauge
L-shaped Hexagonal Wrench
(across flat has 1.27 mm)

Mode: EJECT mode

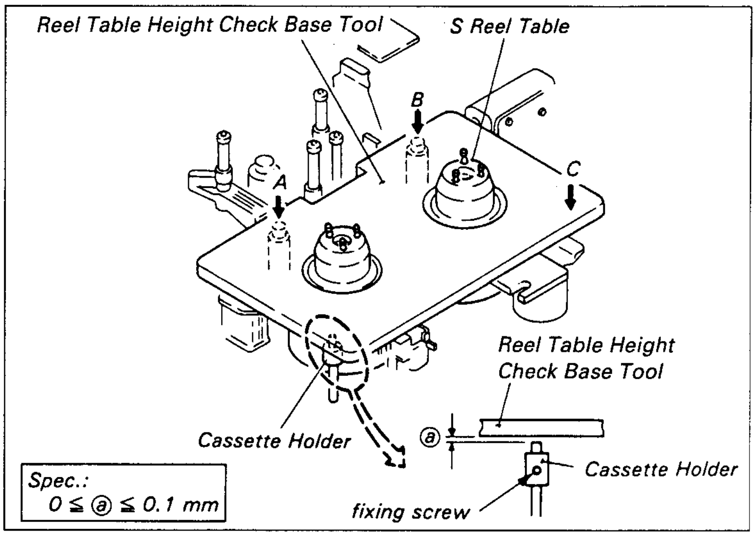
Check procedure:

(1) Place Reel Table Height Check Base Tool onto placed the cassette.

(2) Check that the clearance between the Reel Table Height Check Base Tool and Cassette Holder meets the required specification pushing lightly the Tool shown at (A), (B) and (C).

Adjustment procedure:

(1) Loosen a set screw, and adjust the position of the Cassette Holder.


Reel Table Height Check Base Tool
S Reel Table
A
B
C
Reel Table Height Check Base Tool
Cassette Holder
ⓐ
Cassette Holder
fixing screw

Spec.:
0 ≤ ⓐ ≤ 0.1 mm

5-1-2. Reel Table Height and Vertical Play Adjustment

- The height of Reel Table is the reference for Tape Threading and Tape Path System.
  This Adjustment should be carried out very carefully.

Tool: Reel Table Height Check Base Tool
Reel Table Height Check Tool
Slide Vernier Calipers or Equivalent

Mode: EJECT completion mode

Check procedure:
Reel Table Height

(1) Place the Reel Table Height Check Base Tool onto placed the cassette.

(2) Move Reel Height Check Tool in the direction of the arrow, and check it meets the required specification.
- Use SO and SX probes for Supply Reel Table
- Use TO and TX probes for Take-up Reel Table

Reel Table Vertical Play

(3) Remove the Reel Table Height Check Base Tool.

(4) Move the Reel Table in vertical direction after lifting up it using a hand. Tighten the fixing screw of the Reel Table. Check that the Vertical play meets the required specification.

Adjustment procedure:

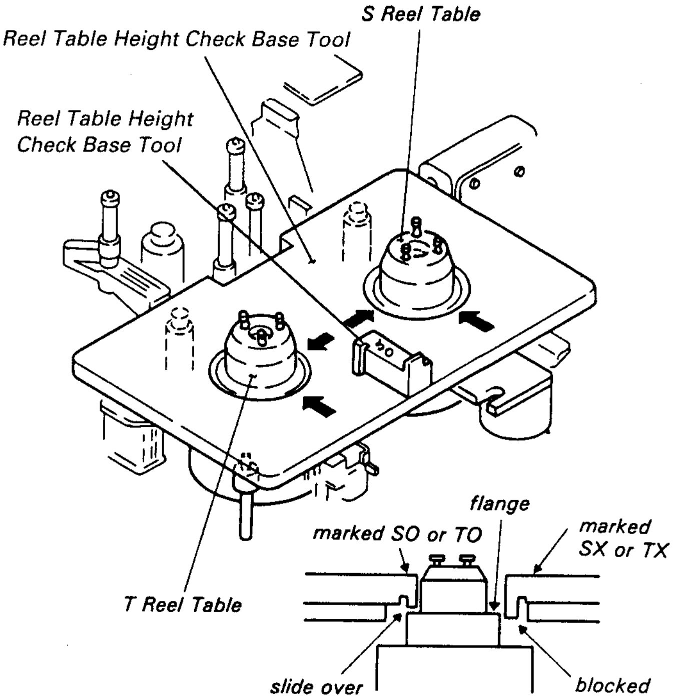
(1) Place Adjustment Poly-slider Washers under the Reel Table, and adjust the height of the Reel Table.

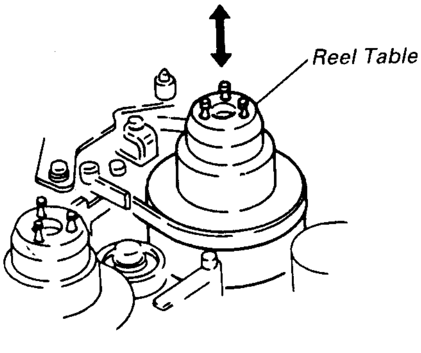
(2) Place the Adjustment Poly-slider Washers on the Reel Table, and adjust the vertical play of the Reel Table.

- Adjustment Poly-slider Washer:

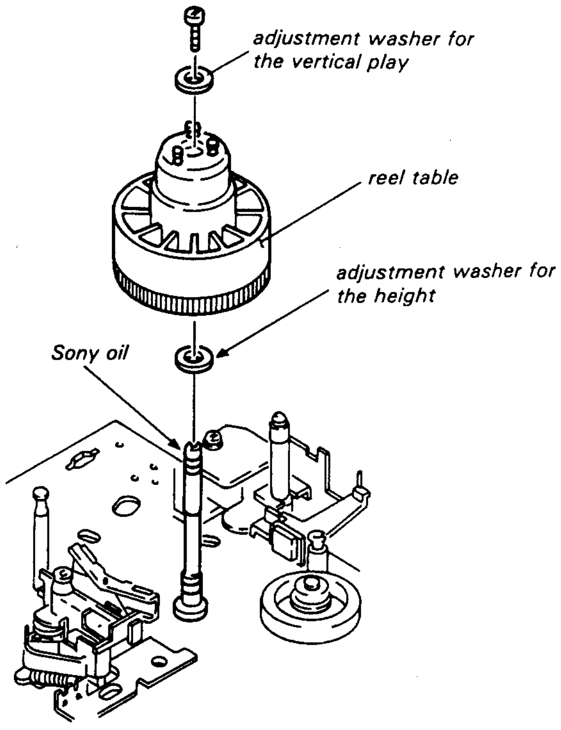
3-645-567-11 6 mm dia. 0.05 mm thick
3-701-444-01 6 mm dia. 0.13 mm thick
3-701-444-11 6 mm dia. 0.25 mm thick
3-701-444-21 6 mm dia. 0.5 mm thick

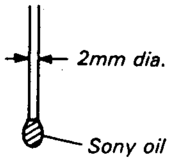
Note: When the Reel Table is removed and its height is adjusted using the washer, drop a drop of Sony Oil on the Reel Shaft. A drop of Sony Oil is the amount which sticks to a 2 mm dia. rod as shown in the figure.





Spec.: vertical play
0.17 mm ~ 0.38 mm


adjustment washer for the vertical play
reel table
adjustment washer for the height
Sony oil


2mm dia.
Sony oil

5-2. T DRAWER ARM ADJUSTMENT

5-2-1. T Drawer Arm EJECT Position Adjustment

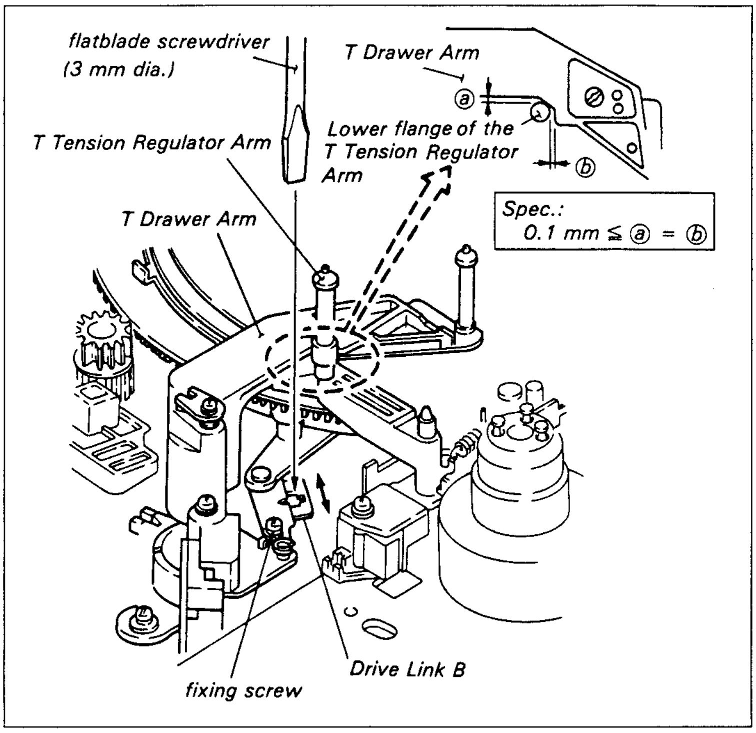
Mode: Select the unit into EJECT completion mode after selecting the unit into the FR-STOP mode without a cassette-tape.

Check procedure:

(1) Check that the clearance between the lower flange of T Tension Regulator Arm and T Drawer Arm meets the required specification.

Adjustment procedure:

(1) Adjust the position of Drive Link (B) Assembly to meet the required specification using a flatbrade screwdriver (3mm dia.).


flatblade screwdriver
(3 mm dia.)
T Drawer Arm
ⓐ
T Tension Regulator Arm
Lower flange of the
T Tension Regulator
Arm
ⓑ
Spec.:
0.1 mm ≦ ⓐ = ⓑ
T Drawer Arm
Drive Link B
fixing screw

5-2-2. Unthread-end Switch Position Adjustment

Tool: Black vinyl tape (1 cm × 1.5 cm)

Preparation:

(1) Select the unit into the FR-STOP mode, and turn the POWER OFF.

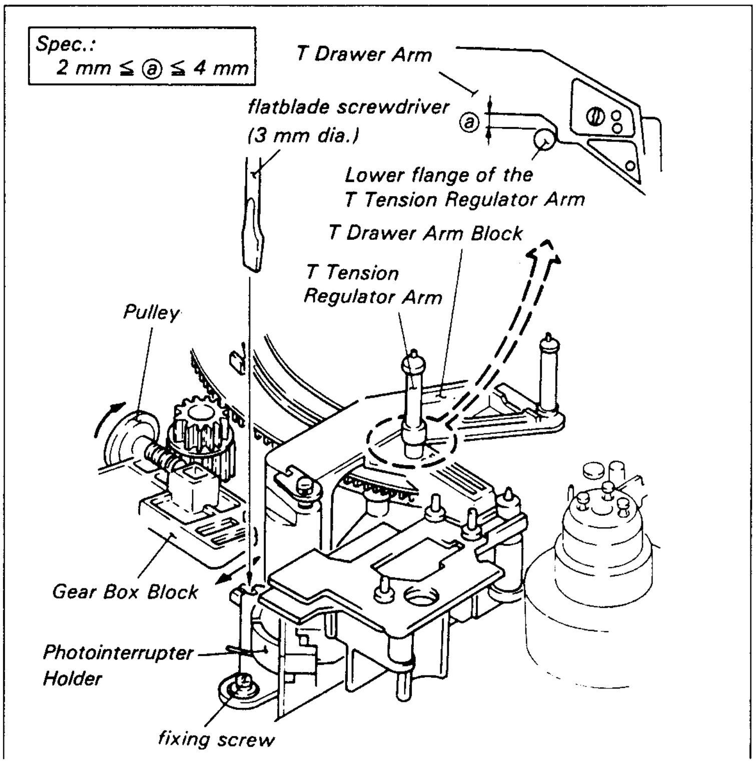
(2) Remove Pinch Press Lever Spring from the bracket of FR Detector Block using tweezers.

(3) Remove FR Detector Block, and cover D2 Photointerrupter (FR-UNTHREAD END Detector) using black vinyl tape. The FR Detector selects into the FR-STOP mode by compulsion.

Check procedure:

(1) Turn the pulley of Gear Box Block clockwise using a hand after turning the POWER ON.

(2) When the positions of T Drawer Arm and T Tension Regulator Arm are situated in the figure, check that T Solenoid clicks.


Spec.:
2 mm ≦ ⓐ ≦ 4 mm
T Drawer Arm
flatblade screwdriver
(3 mm dia.)
ⓐ
Lower flange of the
T Tension Regulator Arm
T Drawer Arm Block
T Tension
Regulator Arm
Pulley
Gear Box Block
Photointerrupter
Holder
fixing screw

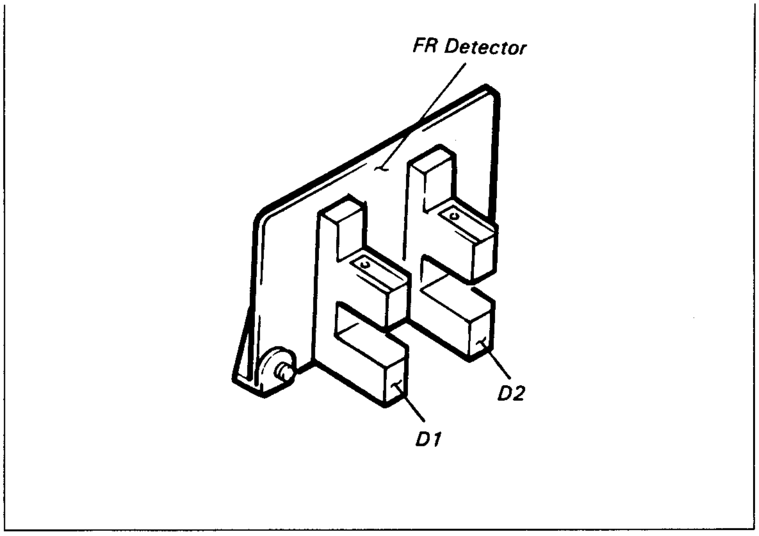
Adjustment procedure:

(1) Adjust the position of the Photointerrupter Holder to meet the required specification using a flatblade screwdriver (3mm dia.).

(2) Turn the POWER OFF, and install the FR Detector Block after peeling off the black vinyl tape.

(3) Carry out Section 5-3-4. FR Detector Installing Position Adjustment.

(4) Hook Pinch Press Lever Spring to the bracket of the FR Detector Block using tweezers.



5-3. THREADING SYSTEM ADJUSTMENT

5-3-1. Threading Ring Rotation Adjustment

- Do not carry out this adjustment except Threading Ring is replaced or removed.
- If the clearance is narrow because of this adjustment is incompleteness, Threading Ring rotation will be wrong. If the clearance is wide because of this adjustment is incompleteness, tape running will be unstable selecting into the Threading, FWD or REV mode.

Check procedure:

(1) Select the unit into the EJECT completion mode.

(2) Check that the horizontal play meets the required specification when pushing the Threading Ring in the direction of the arrow.

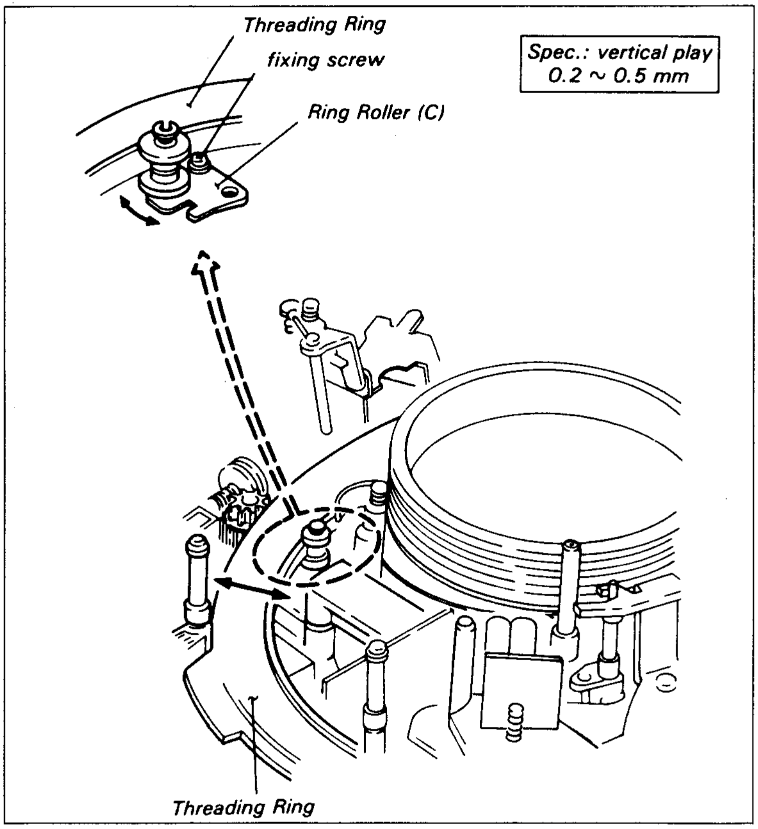
(3) Repeat Threading/Unthreading operations a few times. Check that the Threading Ring rotation is smooth.

Adjustment procedure:

(1) Select the unit into the EJECT completion mode.

(2) Adjust the position of Ring Roller (C) to meet the required specification.

- **Reference:**
  Insert a paper of 0.3 mm thick between Threading Ring and Ring Roller (C). 3 pages of this manual are about 0.3 mm thick.



5-3-2. Gear Box Installing Position Adjustment

- It is required that Section 5-3-1. Threading Ring Rotation Adjustment is correct before initiating this adjustment.

Mode: Select the unit into the EJECT completion mode. Turn the pulley of Gear Box 1/2 to 1 turn in the direction of arrow C.

Check procedure:

(1) Select the unit into the EJECT completion mode. Turn the pulley of the Gear Box 1/2 to 1 turn in the direction of arrow C.

(2) Mark 2 lines on the top surface of gear using a black felt tip pen. It is easy to see 2 lines for this adjustment.

(3) Turn the pulley of the Gear Box in the direction of arrow C or D until 1 line is roughly parallel to the outer circumference of the Threading Ring.

(4) Check that the position between the outer circumference of the Threading Ring and Gear meets the required specification.

Adjustment procedure:

(1) Open SY-174 Board.

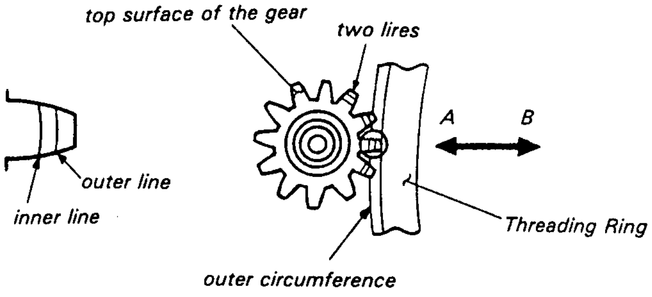
(2) Turn the pulley of the Gear Box in the direction of arrow C or D until 1 line is roughly parallel to the outer circumference of the Threading Ring.

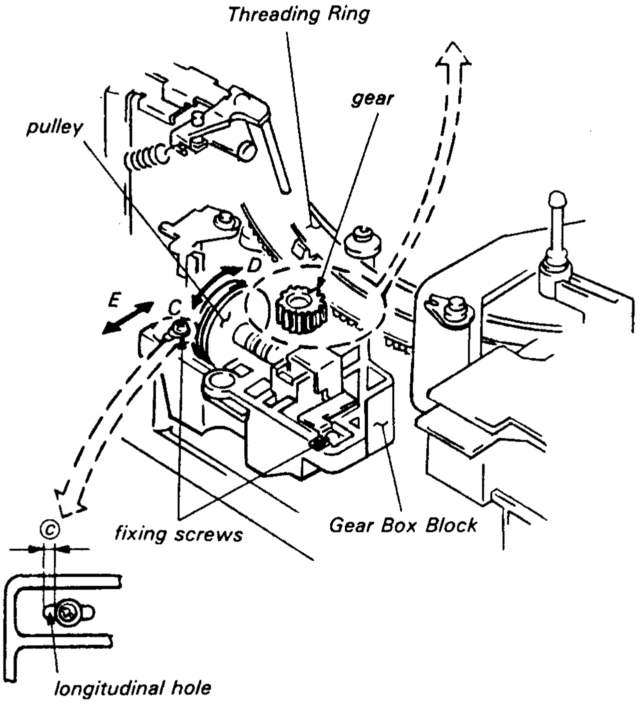
(3) Move the Gear Box in the direction of arrow E to meet the required specification.

(4) Carry out the adjustment referring to Section 6-5-1. Check that the required specification meets.

(5) Check that clearance at the longitudinal hole of the Gear Box Block meets the required specification.

Spec.:
(1) When pushing the Threading Ring in the direction of arrow A or B, the outer circumference of the Threading Ring is situated between two lines of the gear.


top surface of the gear
two lires
A
B
outer line
inner line
Threading Ring
outer circumference


Threading Ring
gear
pulley
D
E
C
©
fixing screws
Gear Box Block
longitudinal hole

Spec.:
0.1 mm ≦ © ≦ 1.5 mm

5-3-3. Pinch Roller Self Alignment Adjustment

- If this adjustment is incompleteness, the position and slantness of Pinch Roller will be wrong when the Pinch Roller is pressed against Capstan Shaft. Incompleteness adjustment will cause a tape to be damaged.

Mode: PLAY mode without a cassette tape

Check procedure:

(1) Select the unit into the PLAY mode without a cassette tape.

(2) Check that the positions of Pinch Roller Arm (A) and Pinch Roller Arm (B) meet the required specification.

Adjustment procedure:

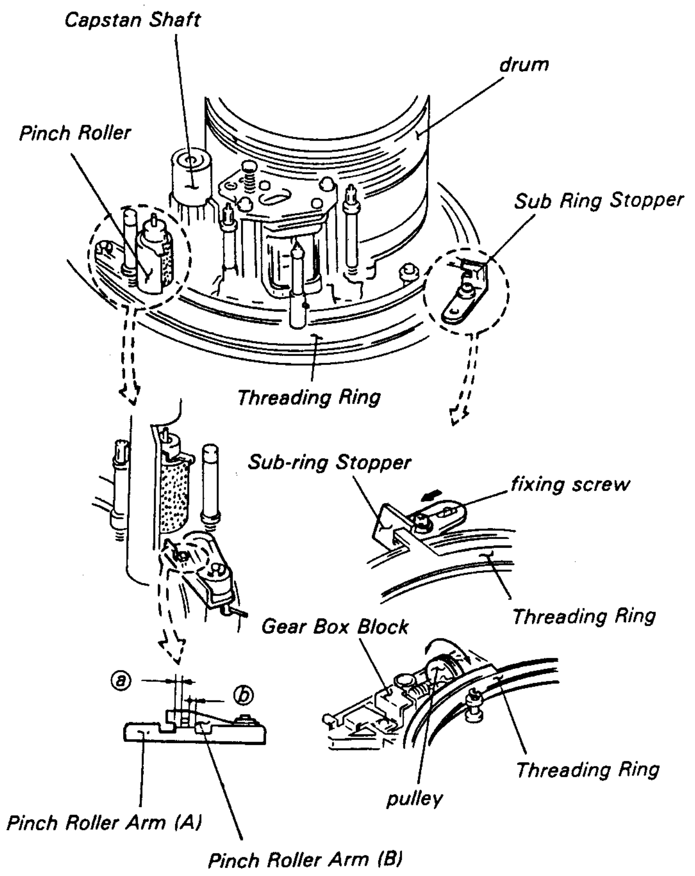
(1) Select the unit into the PLAY mode without a cassette tape.

(2) Loosen the fixing screw of Sub Ring Stopper.

(3) Turn the pulley of the Gear Box Block in the direction of the arrow to meet the required specification using a hand.

(4) Push the Sub Ring Stopper gently in the direction of the arrow, and tighten the fixing screw.

(5) Carry out the check procedure after selecting the unit into the EJECT completion mode.


Capstan Shaft
drum
Pinch Roller
Sub Ring Stopper
Threading Ring
Sub-ring Stopper
fixing screw
Gear Box Block
Threading Ring
ⓐ
ⓑ
Threading Ring
pulley
Pinch Roller Arm (A)
Pinch Roller Arm (B)

Spec.:
There are clearances ⓐ and ⓑ.

5-3-4. FR Detector Block Installing Position Adjustment

- It is required that the Section 5-3-1. Threading Ring Rotation Adjustment is correct before initiating this adjustment.

Adjustment procedure:

(1) Select the unit into the Threading completion mode, and turn the POWER OFF.

(2) Remove Pinch Press Lever Spring from the bracket of FR Detector Block using tweezers.

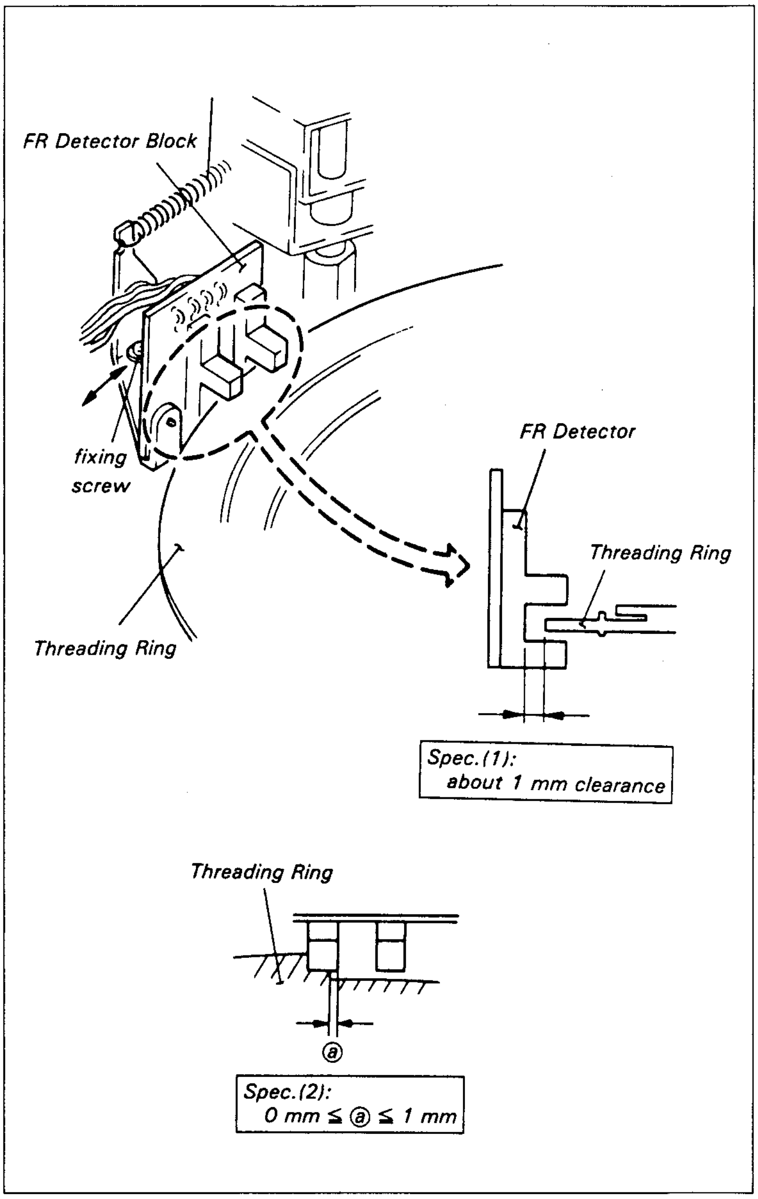
(3) Loosen the fixing screw of the FR Detector Block 1/4 to 1/2 turn.

(4) Reverse the FR Detector Block about 1mm after pressing the FR Detector Block against the Threading Ring. (Spec. (1))

(5) Move the FR Detector Block in the direction of the arrow to meet Spec. (2).

(6) Check that the clearance meets Spec. (1).

(7) Hook the Pinch Press Lever Spring to the bracket of the FR Detector Block using tweezers.


FR Detector Block
fixing screw
Threading Ring
FR Detector
Threading Ring
Spec.(1):
about 1 mm clearance
Threading Ring
ⓐ
Spec.(2):
0 mm ≤ ⓐ ≤ 1 mm

5-4. PINCH LEVER BLOCK ADJUSTMENT

5-4-1. Pinch Lever Preset Adjustment

- It is required that Section 5-3-1. Threading Ring Rotation Adjustment, and Section 6-3-3. Pinch Roller Self Adjustment are correct before initiating this adjustment.

Mode: Turn the POWER OFF after selecting into the PLAY mode.

Check procedure:

(1) Turn the POWER OFF after selecting into the PLAY mode. Check that the position of Pinch Solenoid Pin meets the required specification.

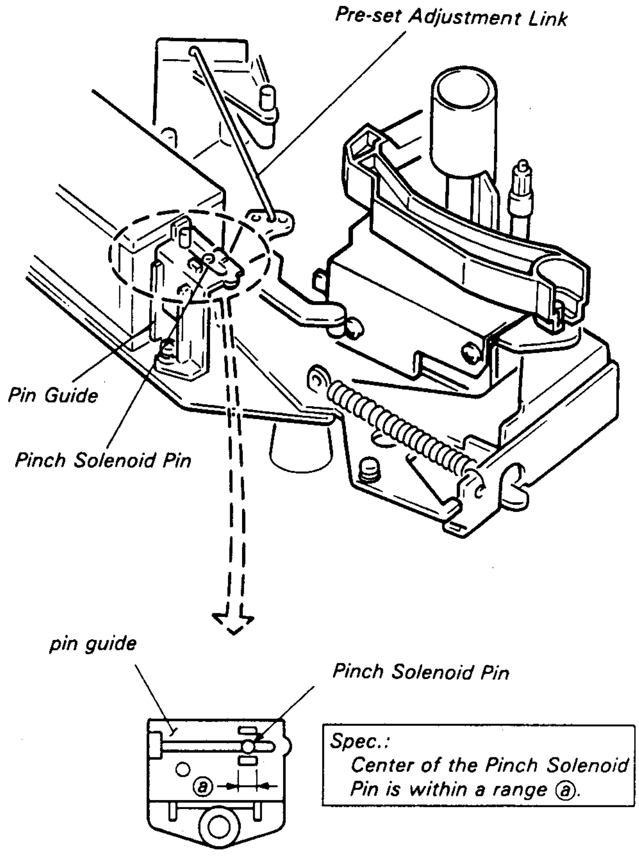
(2) Press the PLAY button after turning the POWER OFF. Repeat in Step (1) after the unthreading completes.

Adjustment procedure:

(1) Adjust the position of the Pinch Solenoid to meet the required specification referring to Section 5-7-4. Pinch Solenoid Installing Position Adjustment.

(2) If the specification in Step (1) can not be obtained, adjust the position of Sub-ring Stopper to meet the required specification referring to Section 5-3-3. Pinch Roller Self Alignment Adjustment.

(3) If the specification in Steps (1) and (2) cannot be obtained, insert Pinch Lever Preset Adjustment Link in the appropriate hole of Preset Lever Assembly to meet the required specification. Carry out Steps (1) and (2).



Spec.:
Center of the Pinch Solenoid Pin is within a range ⓐ.

5-4-2. Pinch Roller Preset Adjustment

- If is required that Section 5-3-1. Threading Ring Rotation Adjustment, and Section 5-3-3. Pinch Roller Self Alignment Adjustment are correct before initiating this adjustment.

Tool: Thickness Gauge

Mode: PLAY mode

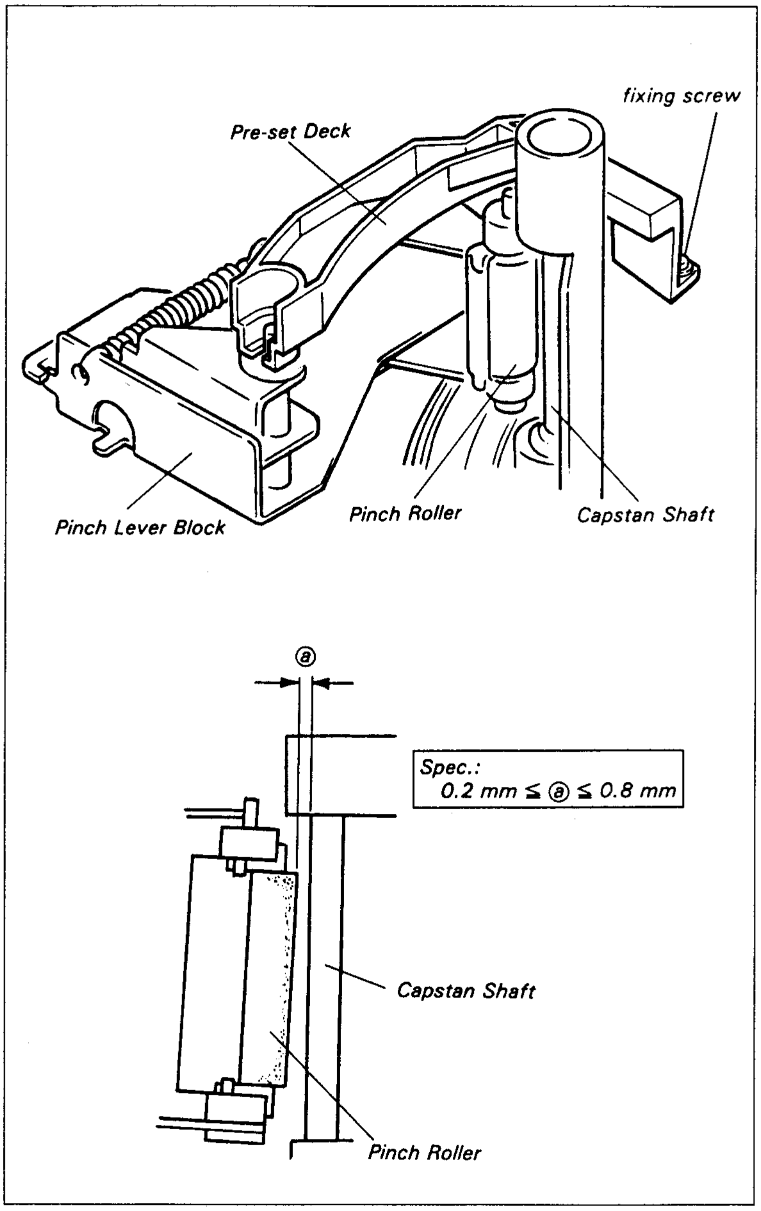
Check procedure:

(1) Check that the clearance between Pinch Roller and Capstan Shaft meets the required specification.

Adjustment procedure:

(1) Adjust the position of Pre-set Deck to meet the required specification.

(2) Repeat the Threading/Unthreading modes 2 or 3 times, and check that it meet the required specification.


fixing screw
Pre-set Deck
Pinch Lever Block
Pinch Roller
Capstan Shaft
ⓐ
Spec.:
0.2 mm ≦ ⓐ ≦ 0.8 mm
Capstan Shaft
Pinch Roller

5-4-3. Pinch Solenoid Block Position Adjustment

Tool: Threading Gauge

Mode: PLAY mode with a cassette tape

Check procedure:

(1) Select the unit into the PLAY mode with a cassette.

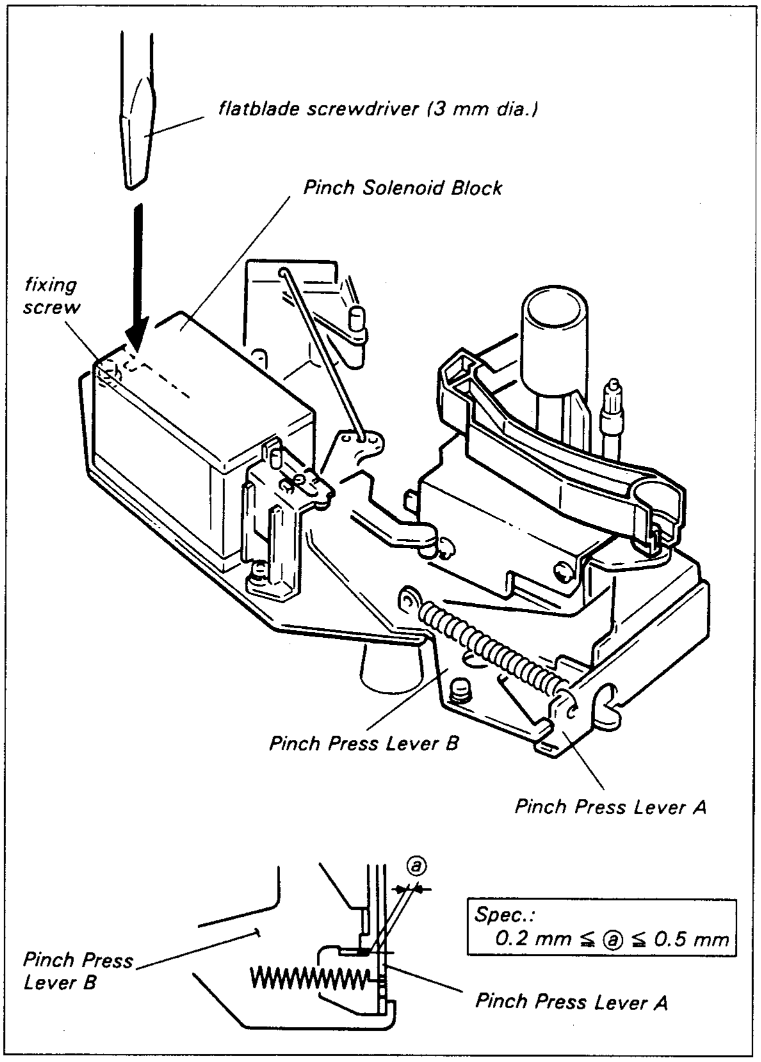
(2) Check that the clearance between Pinch Press Lever A and B meet the required specification.

(3) Repeat in Step (2) after selecting into the Unthreading/ Threading modes 2 or 3 times.

Adjustment procedure:

(1) Select the unit into the PLAY mode. Adjust the position of Pinch Solenoid Block to meet the required specification using a flatblade screwdriver (3mm dia.).

(2) Carry out the Check procedures (2) and (3).


flatblade screwdriver (3 mm dia.)
Pinch Solenoid Block
fixing screw
Pinch Press Lever B
Pinch Press Lever A
ⓐ
Pinch Press Lever B
Pinch Press Lever A

Spec.:
0.2 mm ≦ ⓐ ≦ 0.5 mm

5-5. T TAPE SENSOR POSITION ADJUSTMENT

- There are 2 adjustments in this section. The 1st is the height adjustment, and 2nd is the adjustment of clearance between tape and LED.

Tool: Thickness gauge

Check procedure:

(1) Select the unit into the FR STOP mode with a cassette. Push the tape as shown in the figure using a hand. Check that the clearance between top edge of the tape and bottom of T Photo Holder Block (black plastic) meets the required specification. (Spec. (1))

(2) Select the unit into the PLAY mode.

(3) As viewed from the top of the unit, check that shown at the ** of T Tape Sensor Block is situated at the upper flange of T Drawer Arm (within the range A). (Spec. (2))

Adjustment procedure:

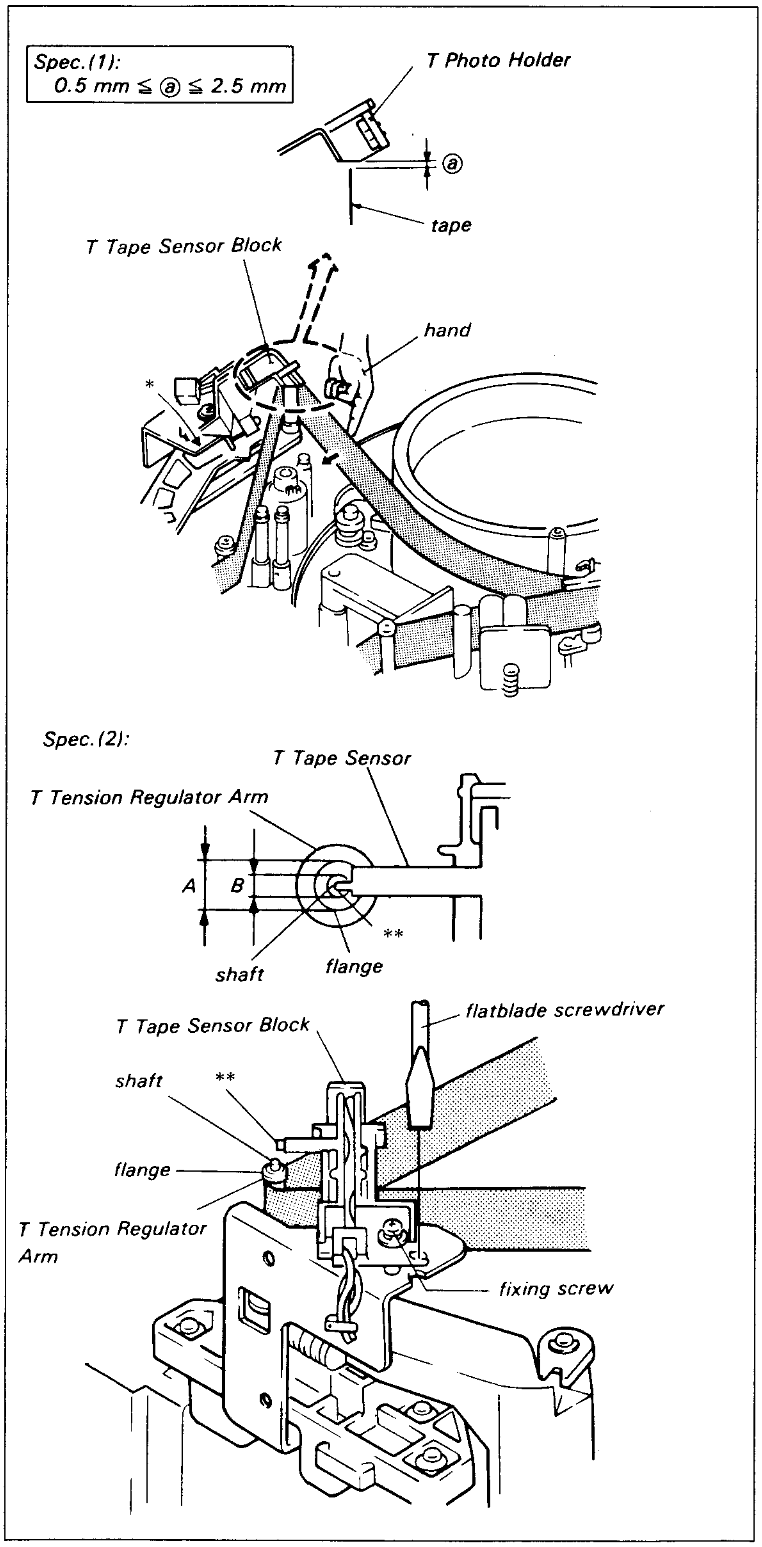
(1) Bend shown at the * to meet the required specification (1) using pliers. Carry out Check procedures (2) and (3).

(2) Loosen the fixing screw of the T Tape Sensor Block 1/2 to 1 turn.

(3) Select the unit into the PLAY mode.

(4) As viewed from the top of the unit, adjust the position of the T Tape Sensor Block so that shown at the ** of the T Tape Sensor Block is situated above the shaft of the T Drawer Arm (within the range B) using a flatblade screwdriver.

(5) Check that it meets the required Spec. (1).


Spec. (1):
0.5 mm ≦ ⓐ ≦ 2.5 mm
T Photo Holder
ⓐ
tape
T Tape Sensor Block
hand
*
Spec. (2):
T Tape Sensor
T Tension Regulator Arm
A
B
**
shaft
flange
T Tape Sensor Block
flatblade screwdriver
shaft
**
flange
T Tension Regulator Arm
fixing screw

5-6. TENSION ARM SYSTEM ADJUSTMENT

5-6-1. S Drawer Roller Block Limiter Adjustment

Mode: FR-STOP mode

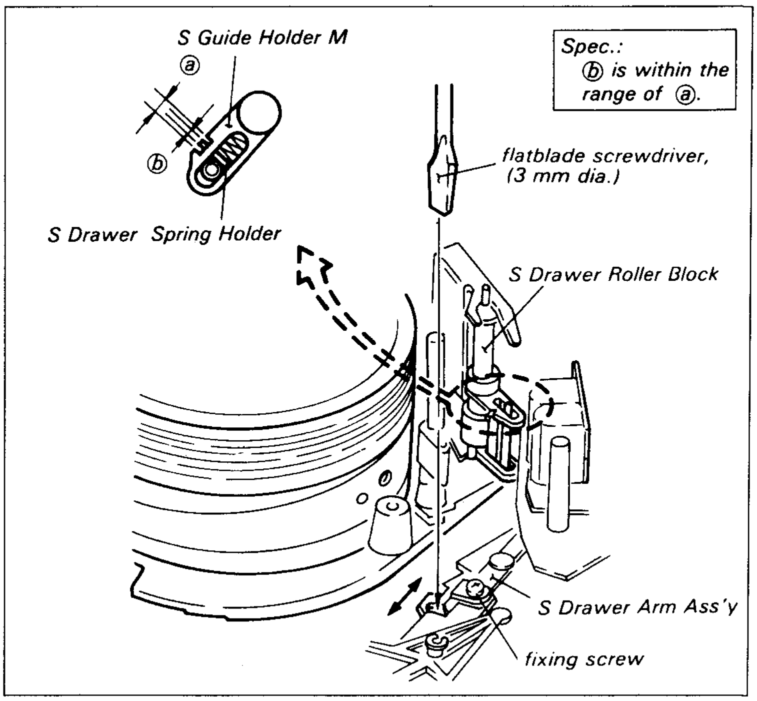
Check procedure:

(1) Check that shown at the B of S Drawer Spring Holder inserts in shown at the A of S Guide Holder M.

Adjustment procedure:

(1) Loosen the fixing screw of S Drawer Arm Assembly 1/4 to 1/2 turn.

(2) Adjust the position of the S Drawer Arm Assembly to meet the required specification using a flatblade screwdriver (3mm dia.).


S Guide Holder M
ⓐ
ⓑ
S Drawer Spring Holder
flatblade screwdriver, (3 mm dia.)
S Drawer Roller Block
S Drawer Arm Ass'y
fixing screw

Spec.:
ⓑ is within the range of ⓐ.

5-6-2. T Tension Regulator Operating Position Adjustment

Tool: Thickness Gauge

Mode: FR-STOP mode

Check procedure:

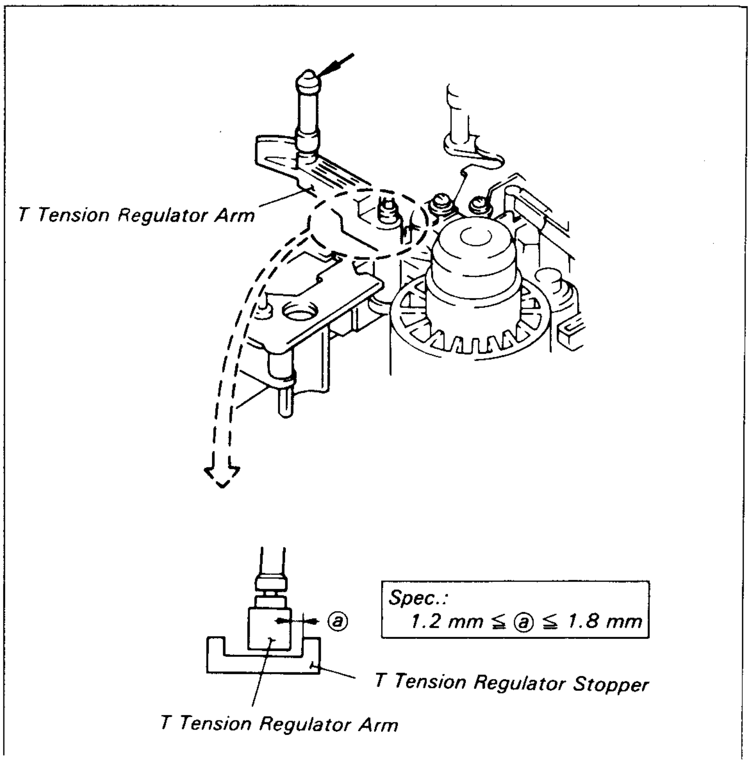
(1) Push T Tension Regulator Arm in the direction of the arrow using a finger.

(2) Check that the clearance between the T Tension Regulator Arm and stopper meets the required specification.

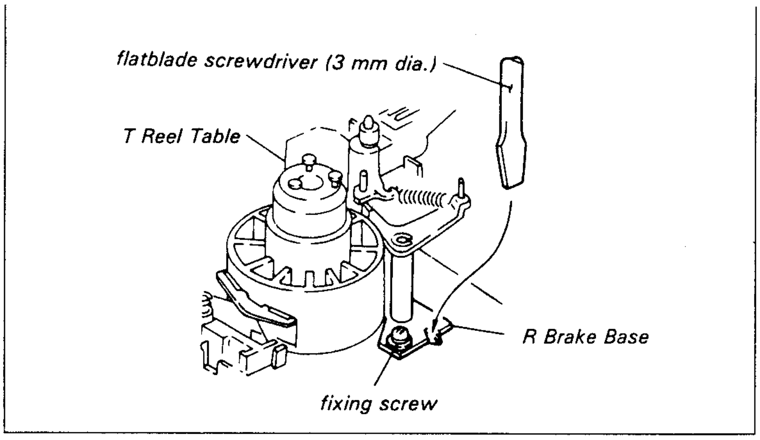
Adjustment procedure:

(1) Loosen the fixing screw of R Brake Base 1/4 to 1/2 turn.

(2) Adjust the position of the R Brake Base to meet the required specification using a flat blade screwdriver (3mm dia.)


T Tension Regulator Arm
ⓐ
T Tension Regulator Stopper
T Tension Regulator Arm

Spec.:
1.2 mm ≦ ⓐ ≦ 1.8 mm


flatblade screwdriver (3 mm dia.)
T Reel Table
R Brake Base
fixing screw

5-6-3. S Tension Regulator Operating Position Adjustment

Mode: FF mode

Check procedure:

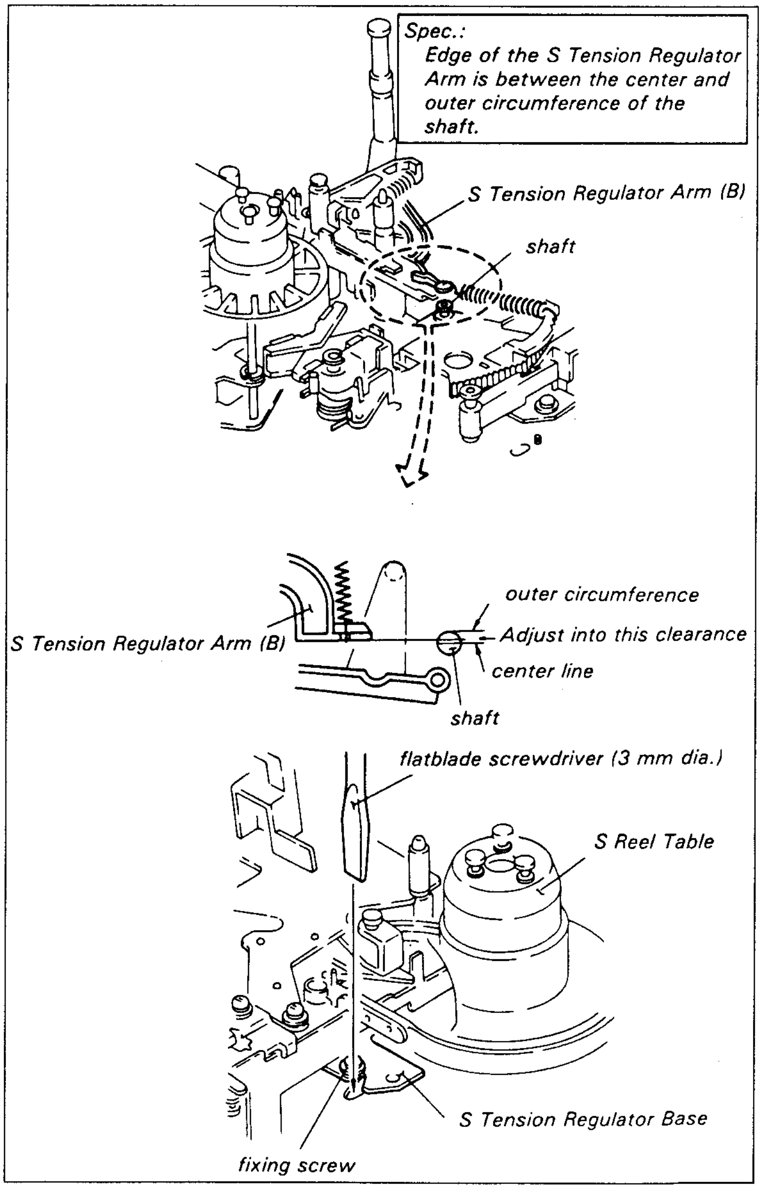
(1) Select the unit into the FF mode without a cassette tape.

(2) Check that the edge of S Tension Regulator Arm (B) meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw of S Tension Regulator Base 1/4 to 1/2 turn.

(2) Adjust the position of the S Tension Regulator Base to meet the required specification.


Spec.:
Edge of the S Tension Regulator Arm is between the center and outer circumference of the shaft.

S Tension Regulator Arm (B)
shaft
outer circumference
S Tension Regulator Arm (B)
Adjust into this clearance
center line
shaft
flatblade screwdriver (3 mm dia.)
S Reel Table
S Tension Regulator Base
fixing screw

5-6-4. Tension Detector Position Adjustment

Tool: DC Voltmeter

Mode: FWD/REV mode

Preparation:

(1) Select the unit into the FWD mode.

(2) Connect DC voltmeter to TP1 on SY-174 Board from the side of the chassis.

Check procedure:

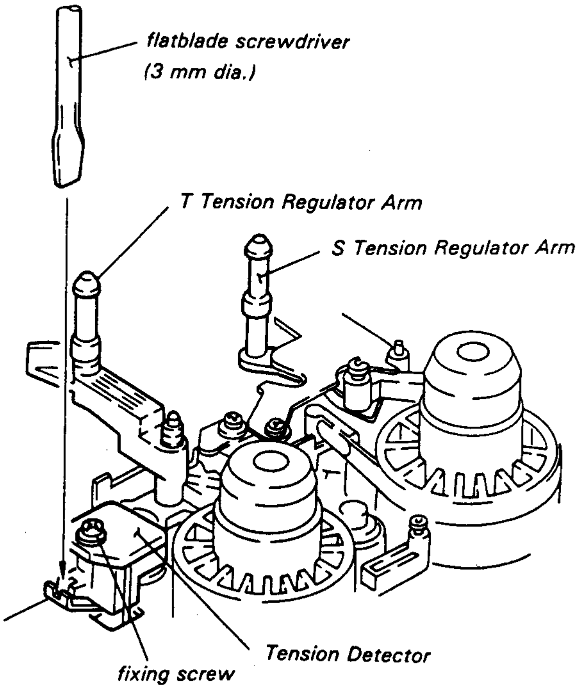
(1) Push right T Tension Regulator Arm as far as it will go using a hand. Check that the DC voltmeter is more than 8V.

(2) Push left the T Tension Regulator Arm as far as it will go using a hand. Check that the DC voltage is less than 2.5V.

(3) Select the unit into the REV mode.

(4) Push right S Tension Regulator as far as it will go using a hand. Check that the DC voltage is less than 2.5V.

(5) Push left the S Tension Regulator as far as it will go using a hand. Check that the DC voltage is more than 8V.


flatblade screwdriver
(3 mm dia.)
T Tension Regulator Arm
S Tension Regulator Arm
Tension Detector
fixing screw

Adjustment procedure:

(1) Remove FR Detector Block.

(2) Loosen the fixing screw of the Tension Detector 1/4 to 1/2 turn.

(3) Insert a flatblade screwdriver (3 mm dia.) in the notch, and adjust the position of the Tension Detector to meet the required specification.

(4) Install the FR Detector after this adjustment.

5-6-5. T Tension Regulator Arm Height Adjustment

Tool: L-shaped hexagonal wrench (across flat has 1.5 mm)

Mode: PLAY/F FWD mode with a cassette tape.

Check procedure:

(1) Select the unit into the PLAY mode with a cassette tape.

(2) Check that the tape runs in the center of tape guide.

(3) Check that the tape runs in the center of T Tension Detector Guide.

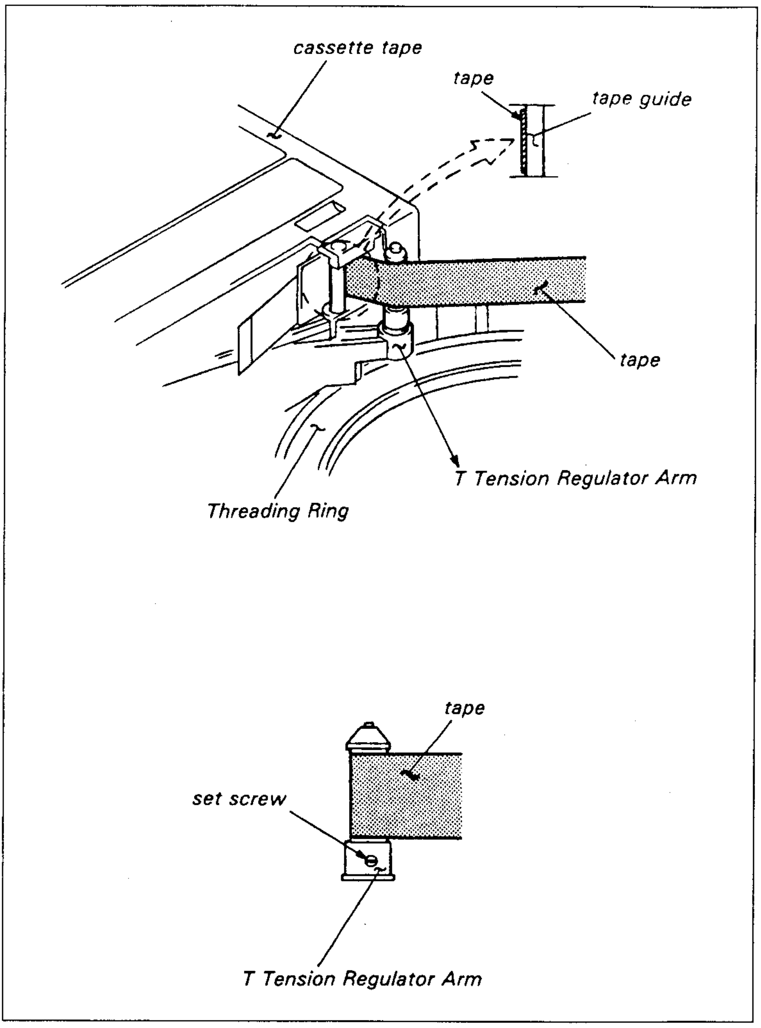
(4) Select the unit into the F FWD mode.

(5) Check as described in Steps (2) and (3).

Adjustment procedure:

(1) Loosen a set screw at the lower flange of T Tension Regulator Arm.

(2) Adjust the height of the T Tension Regulator Arm to meet the required specification.


cassette tape
tape
tape guide
tape
T Tension Regulator Arm
Threading Ring
tape
set screw
T Tension Regulator Arm

5-7. SEARCH SOLENOID SYSTEM ADJUSTMENT

5-7-1. Search Solenoid Installing Position Adjustment

- This adjustment is required only when Search Solenoid is replaced or removed.

Preparation:

(1) Remove Skew Solenoid from the chassis.

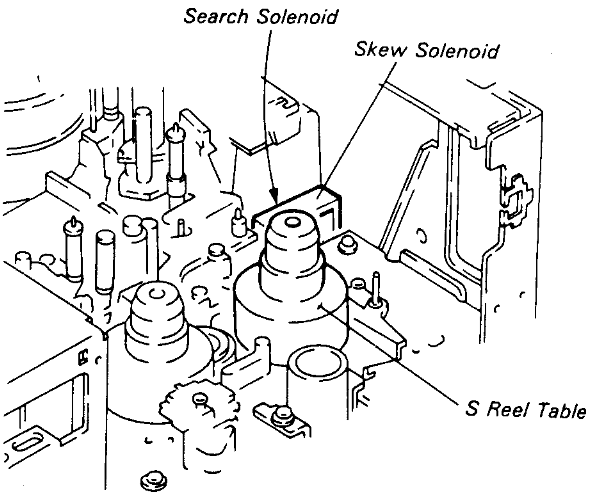
(2) Remove Search Solenoid from the chassis.

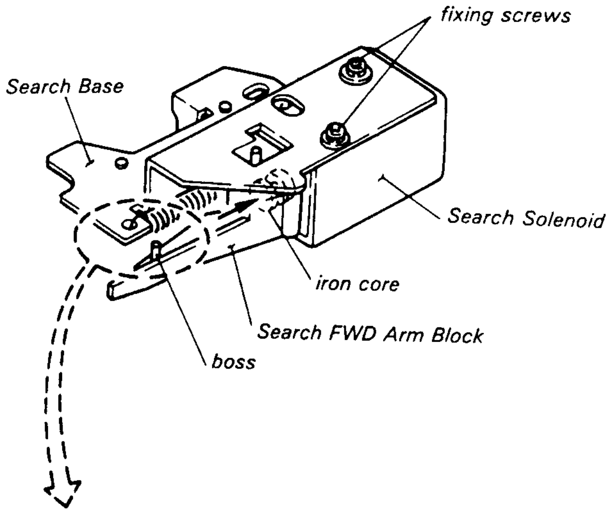
Adjustment procedure:

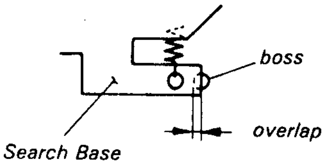
(1) Move the iron core of the Search Solenoid for attraction as far as it will go in the direction of the arrow. Adjust the position of the Search Solenoid so that the overlap of Search FWD Arm Boss and Search Base Plate meets the required specification.

(2) Install the Search Solenoid, and Skew Solenoid after the adjustment.

(3) Carry out the adjustment referring to Section 5-7-7. Skew Solenoid Adjustment.


Search Solenoid
Skew Solenoid
S Reel Table


fixing screws
Search Base
Search Solenoid
iron core
Search FWD Arm Block
boss


boss
Search Base
overlap

Spec.:
0 mm ≦ ⓐ ≦ 1.0 mm

5-7-2. T Idler Solenoid Position Adjustment

- This adjustment is required only when T Idler Solenoid is replaced or removed, or F FWD Torque does not meet the required specification.

Tool: Eccentric Screwdriver (6 mm dia.)

Mode: F FWD mode without a tape

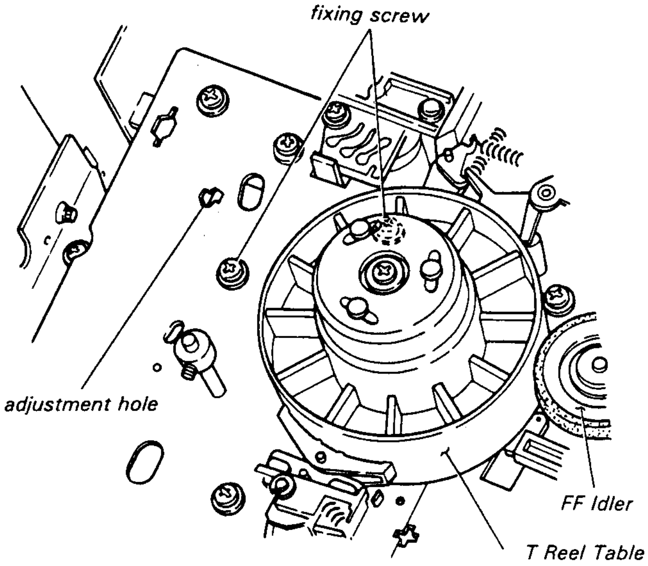
Adjustment procedure:

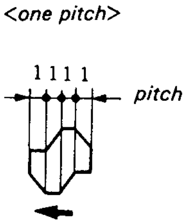
(1) Loosen the fixing screws of T Idler solenoid about 1/2 turn.

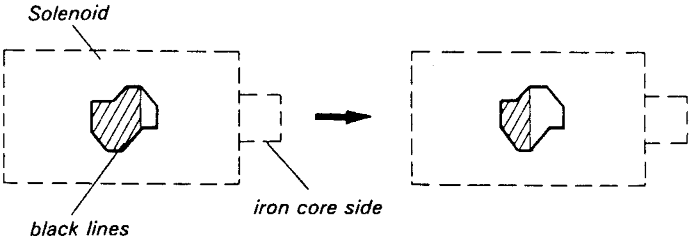
(2) Adjust the position of the T Idler Solenoid until the clearance between T Reel Table and FF Idler is situated from 0.01 mm to 0.1 mm.

(3) Take care of adjustment hole, and check where the black line of the Solenoid is in this hole.

(4) Move the Solenoid in the direction of the arrow only 1 pitch from the position of Step (3). Tighten the fixing screws.


fixing screw
adjustment hole
FF Idler
T Reel Table




Solenoid
black lines
iron core side

5-7-3. S Idler Solenoid Position Adjustment

- This adjustment is required only when S Idler Solenoid is replaced or removed, or REW Torque does not meet the required specification.

Tool: Eccentric Screwdriver (6 mm dia.)

Mode: REW mode without a tape

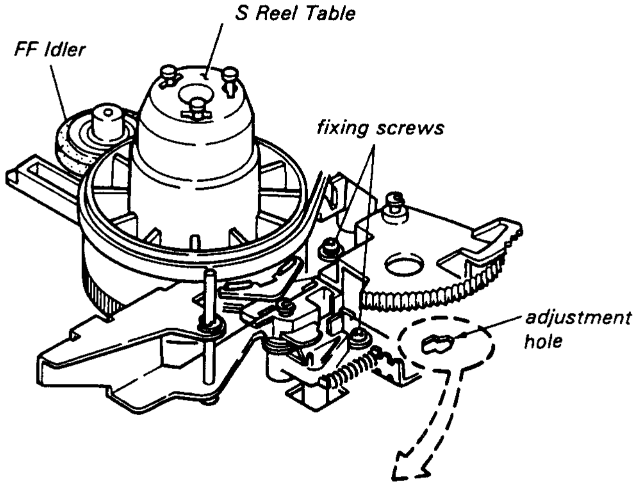
Adjustment procedure:

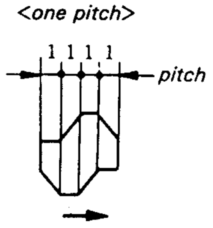
(1) Loosen the fixing screws of S Idler Solenoid about 1/2 turn.

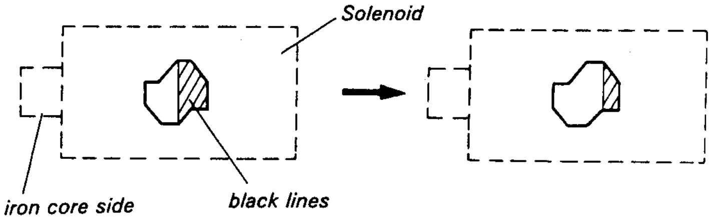
(2) Adjust the position of the S Idler Solenoid until the clearance between S Reel Table and FF Idler is situated from 0.01 to 0.1 mm.

(3) Take care the adjustment hole, and check where the black line of the Solenoid is in this hole.

(4) Move the Solenoid in the direction of the arrow only 1 pitch from the position of Step (3). Tighten the fixing screws.


S Reel Table
FF Idler
fixing screws
adjustment hole




Solenoid
iron core side
black lines

5-7-4. Pinch Solenoid Installing Adjustment

- This adjustment is required only when Pinch Solenoid is replaced, or removed.

Mode: PLAY mode with a cassette tape

Check procedure:
(1) Open RP Board.

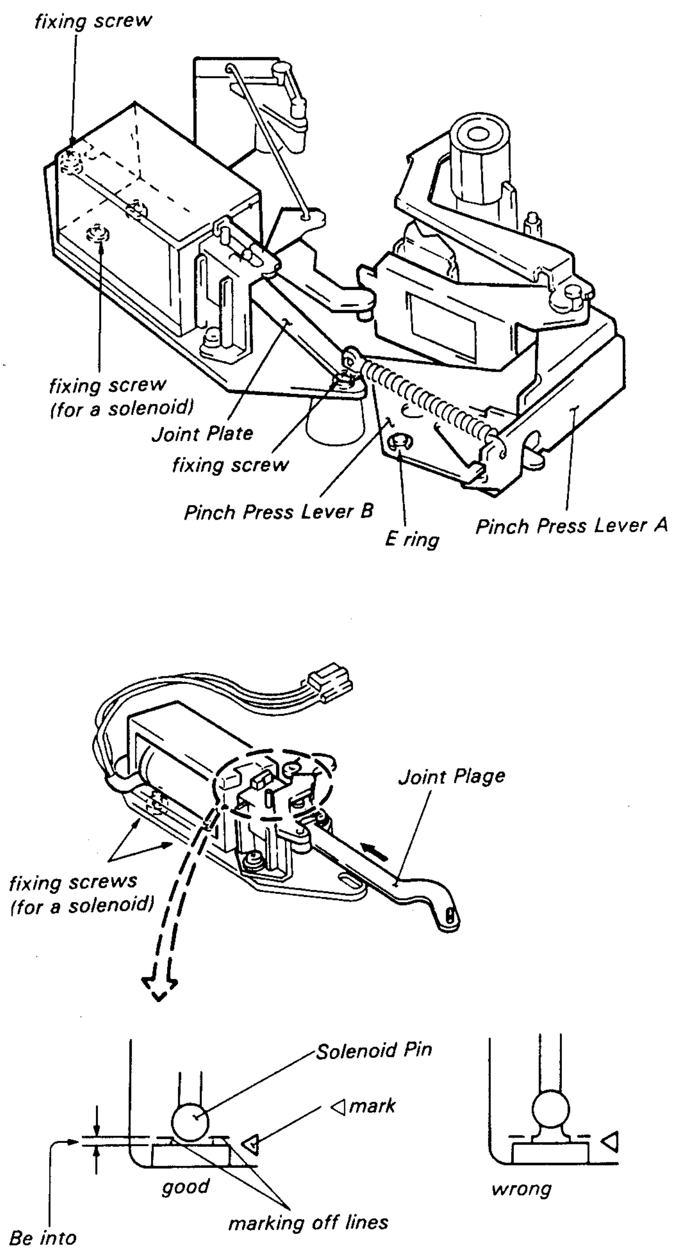
(2) Check that the outer circumference of Solenoid Pin meets the required specification.

Adjustment procedure:
(1) Pull out E Ring horizontal direction after inserting a flatblade screwdriver in it, and remove the E Ring. Remove Joint Lever from Pinch Press Lever B.

(2) Remove Pinch Solenoid Block from the chassis after removing 2 fixing screws.

(3) Move Joint Lever for attraction as far as it will go in the direction of the arrow. Adjust the position of the Solenoid so that the outer circumference of the Solenoid Pin to meet the required specification.

(4) Install the Pinch Solenoid Block on the unit. Carry out the check procedure, and check that it the required specification.


fixing screw
fixing screw
(for a solenoid)
Joint Plate
fixing screw
Pinch Press Lever B
E ring
Pinch Press Lever A
Joint Plage
fixing screws
(for a solenoid)
Solenoid Pin
◁ mark
good
wrong
marking off lines
Be into
this space.

Spec.:
Outer circumference of Solenoid Pin is between △ mark and marking off lines.

5-7-5. T Brake Solenoid Position Adjustment

Tool: Eccentric Screwdriver (6 mm dia.)

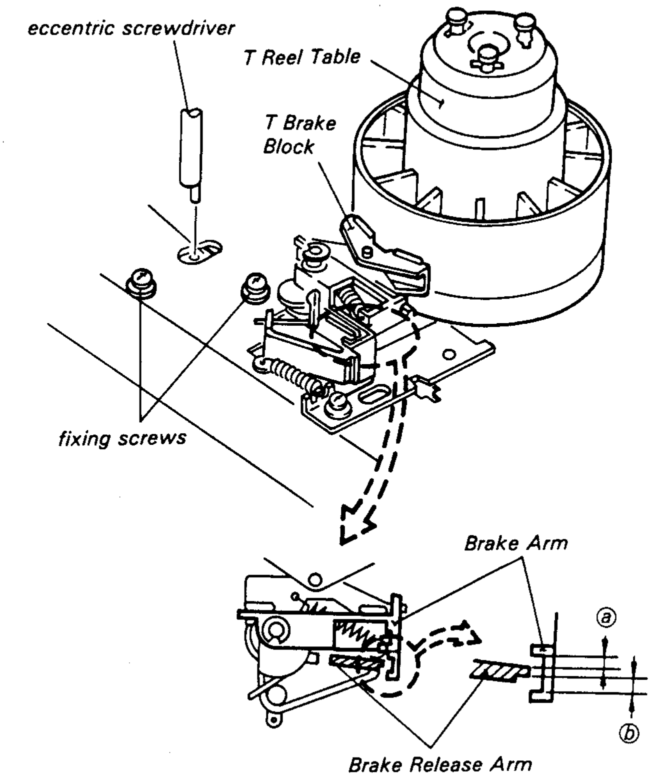
Mode: PLAY mode without a cassette tape

Check procedure:

(1) Check that the position between Brake Release Arm and Brake Arm meets the required specification.

Adjustment procedure:

(1) Adjust the position of T Brake Solenoid to meet the required specification using an eccentric screwdriver.


eccentric screwdriver
T Reel Table
T Brake Block
fixing screws
Brake Arm
ⓐ
ⓑ
Brake Release Arm

Spec.:
There are clearances ⓐ and ⓑ.

5-7-6. S Brake Solenoid Position Adjustment

Tool: Eccentric screwdriver (6 mm dia.)

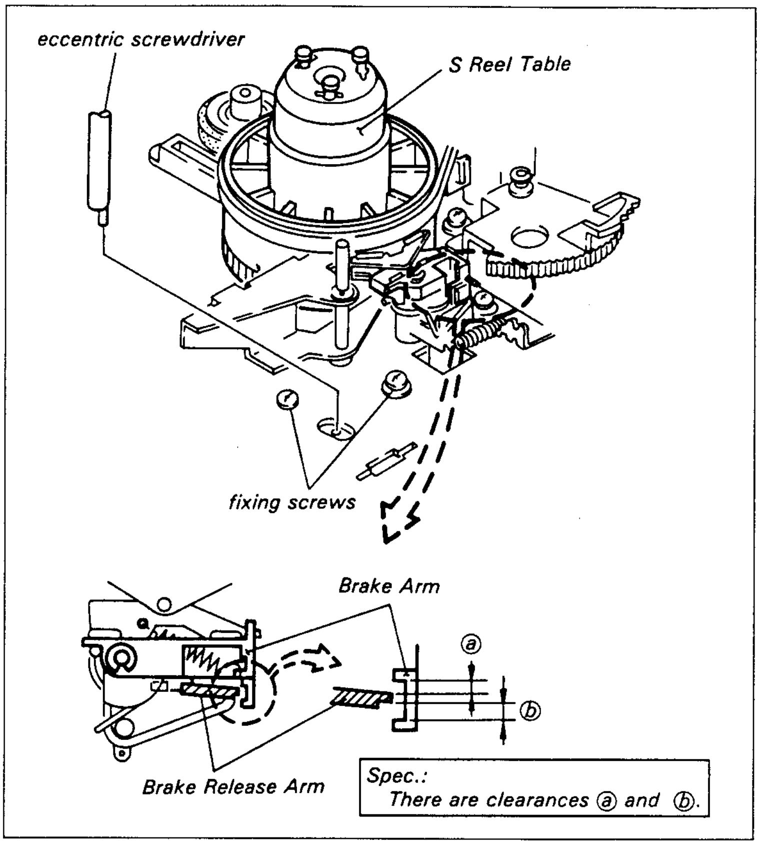
Mode: PLAY mode without a cassette tape

Check procedure:

(1) Check that the position between the Brake Release Arm and Brake Arm meets the required specification.

Adjustment procedure:

(1) Adjust the position of S Brake Solenoid to meet the required specification using an eccentric screwdriver.


eccentric screwdriver
S Reel Table
fixing screws
Brake Arm
ⓐ
ⓑ
Brake Release Arm

Spec.:
There are clearances ⓐ and ⓑ.

5-7-7. Skew Solenoid Position Adjustment

Mode: EJECT completion mode

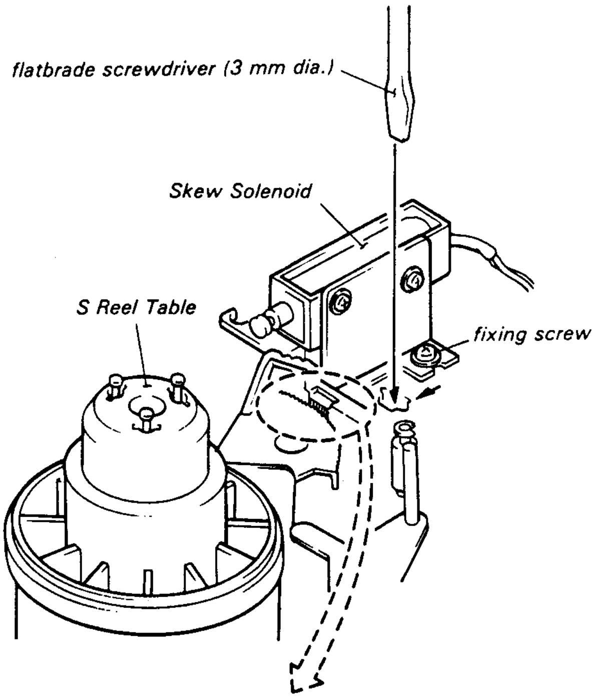
Check procedure:

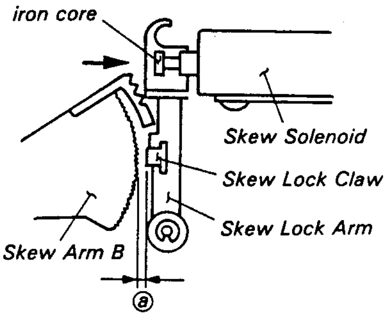
(1) When pushing the iron core of Skew Solenoid in the direction of the arrow, check that the clearance between Skew Lock Claw and Skew Arm B meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw of Skew Solenoid Block 1/4 to 1/2 turn.

(2) Adjust the position of the Skew Solenoid to meet the required specification using a flatblade screwdriver (3 mm dia.).


flatbrade screwdriver (3 mm dia.)
Skew Solenoid
S Reel Table
fixing screw


iron core
Skew Solenoid
Skew Lock Claw
Skew Lock Arm
Skew Arm B
ⓐ

Spec.:
0.2 mm ≤ ⓐ ≤ 0.5 mm

5-8. CASSETTE-UP COMPARTMENT ADJUSTMENT

- Cassette-up Compartment has 2 photo-electric switches. The ON/OFF timing of switches is adjusted as follows.
- Remove the Cassette-up Compartment from the unit for this adjustment.

5-8-1. Cassette-in Switch Position Adjustment

Tool: Circuit Tester
Thickness Gauge

Preparation:

(1) Connect harness plugs (CN 1) of the Cassette-up Compartment to terminals on CC-36 Board as follows using jumpers.

harness plug (CN1)	terminal on CC-36 Board
pin 4 (5V)◄	►pin 4/CN831
pin 5 or 2 (GND)◄	►pin 5 or 2/CN831

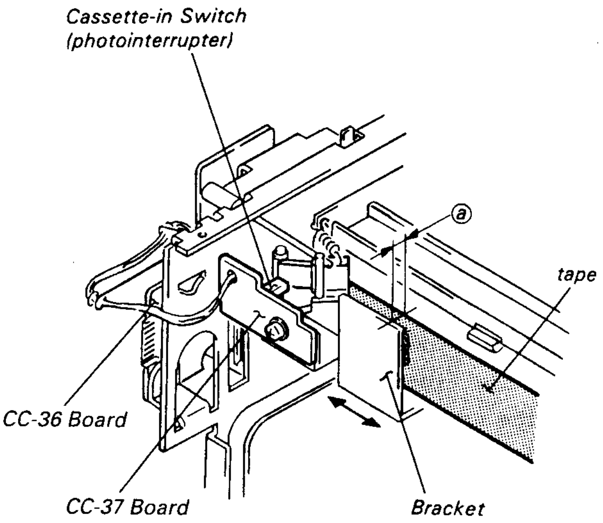
(2) Turn the POWER ON.

Check procedure:

(1) Connect circuit taster to pin 1 (H: CASSETTE IN) of CN831 on CC-36 Board.

(2) Insert slowly a KCA-60 type cassette tape.

(3) When the circuit tester indicates H (about 5V), check that the clearance between the front side of the cassette tape and the bracket of the Cassette-up Compartment meets the required specification.



Spec.:
3 mm ≦ ⓐ ≦ 3.4 mm

Adjustment procedure:

(1) Move Cassette-in Switch in the direction of the arrow to meet the required specification.

- **Reference:**
  Insert 3.3 mm thickness gauge between the cassette tape and bracket. Move the Cassette-in Switch in the direction of the arrow until the circuit tester indicates from L to H.

5-8-2. Cassette-down Switch Position Adjustment

Tool: Circuit Tester

Preparation:

(1) Connect the harness plugs of the Casette-up Compartment to the terminals on CC-36 Board as follows using the jumpers.

harness plug (CN1)	terminal on CC-36 Board
pin 4 (5V)◄	►pin 4/CN831
pin 5 or 2 (GND)◄	►pin 5 or 2/CN831

(2) Turn the POWER ON.

Check procedure:

(1) Connect the circuit tester to pin 3 (H; CASSETTE DOWN) of CN831 on CC-36 Board.

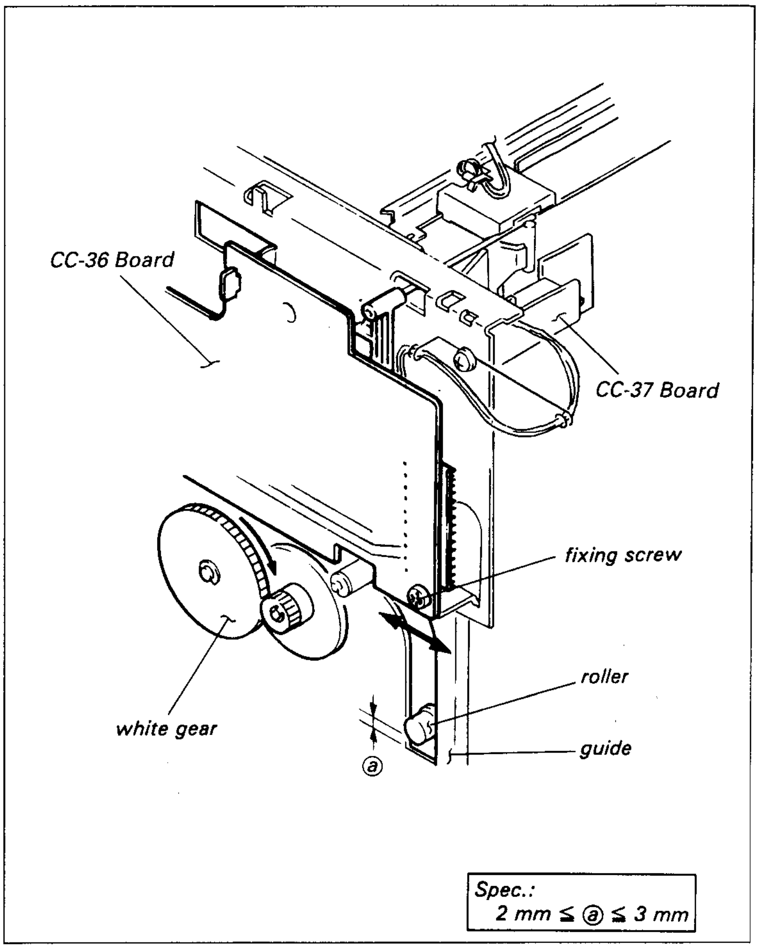
(2) Insert slowly a KCA-60 type cassette tape, and turn slowly white gear in the direction of the arrow using a hand.

(3) When the circuit tester indicates from L to H, check that the clearance between roller and guide meets the required specification.

Adjustment procedure:

(1) Move Cassette-down Switch in the direction of the arrow to meet the required specification.

- **Reference:**
  Turn right the white gear until the clearance between the roller and guide is 2.2 mm. Adjust the position of the Cassette-down Switch so that the circuit tester indicates from L to H.



5-9. LEAF SPRING POSITION ADJUSTMENT

Tool: Thickness gauge

Check procedure:

(1) Select the unit into the EJECT mode after selecting the unit into the PLAY without a cassette tape. Turn the POWER OFF.

(2) Turn Gear Box Pulley in the direction of the arrow so that the edge of T Drawer Arm is situated at the center of shaft using a hand.

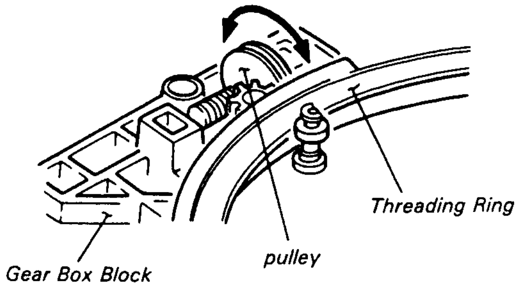
(3) Check that the clearance between Leaf Spring and Pinch Roller Shaft meets Spec. (1).

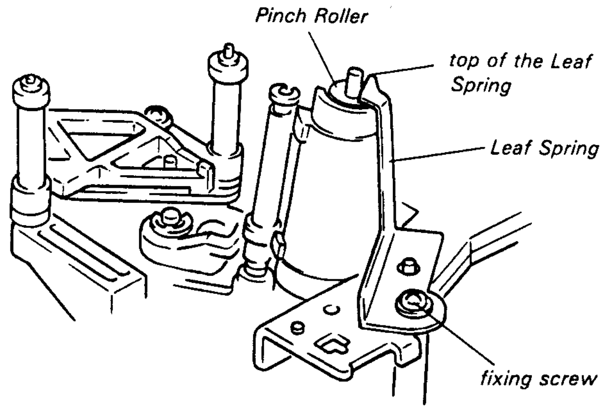
(4) Select the unit into the EJECT completion mode after selecting the unit into the PLAY mode without a cassette tape.

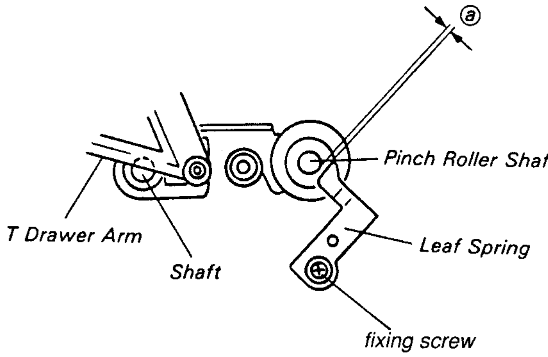
(5) Check that the Leaf Spring touches onto the Pinch Roller Shaft, and the clearance between the Leaf Spring and Pinch Roller meets Spec. (2).

Adjustment procedure:
In the case of the Spring Position do not meet the Spec. (1)
Loosen the fixing screw as shown in the figure, and adjust the position of the Leaf Spring.

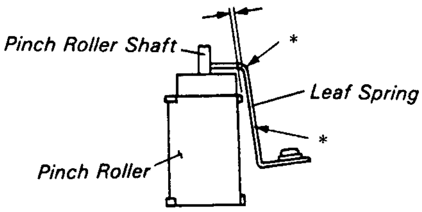
In the case of the Spring Position do not meet the Spec. (2)
Bend the shown at *of the Leaf Spring, and adjust it.


Threading Ring
pulley
Gear Box Block


Pinch Roller
top of the Leaf Spring
Leaf Spring
fixing screw


ⓐ
Pinch Roller Shaft
T Drawer Arm
Shaft
Leaf Spring
fixing screw

Spec.(1):
ⓐ ≦ 0.5 mm


ⓑ
Pinch Roller Shaft
*
Leaf Spring
*
Pinch Roller

Spec.(2):
There is a clearance ⓑ.

SECTION 6
BACK TENSION AND TORQUE ALIGNMENT

6-1. BRAKE SYSTEM ADJUSTMENT

6-1-1. S Brake Torque Adjustment

Tool: Reel Table Torque Measurement. Tape (100 mm dia.)
Tension Scale (200g full scale)

Mode: EJECT completion/POWER OFF mode

Check procedure:

(1) Grasp the top of the S Reel Table while turning it about 30 degrees clockwise using fingers. Check that the clearance between Brake Arm and Lining Holder meets Spec. (1).

(2) Place Reel Table Torque Measurement Tape on the S Reel Table, and hook Tension Scale to the end of the tool tape. Pull out the tool tape about 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets Spec. (2).

Adjustment procedure:
For Spec. (1)

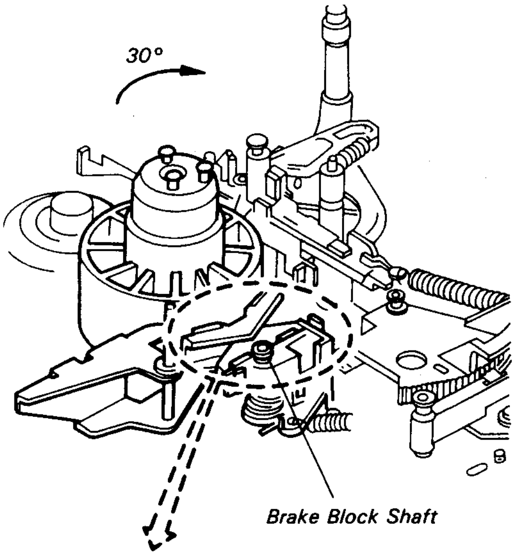
(1) Bend Brake Block Shaft toward the Reel Table, or in the opposite direction using a hand.

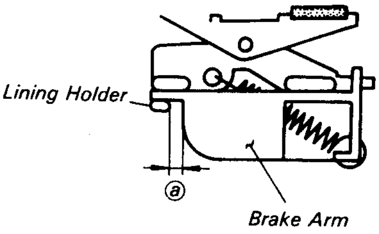
For Spec. (2)

(2) Clean the surface of the Reel Table using a cloth moistened with cleaning fluid.

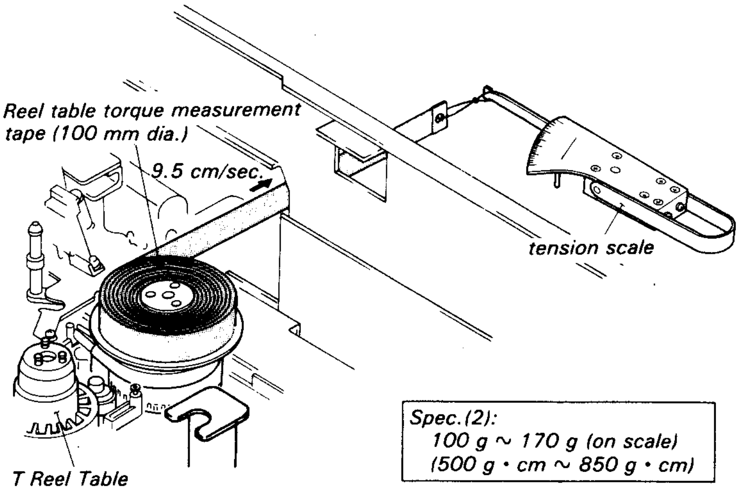
(3) If does not meet Spec. (2), replace Lining Holder and check again.

(4) If does not meet the specification in Step (3), replace the Reel Table and check again.


30°
Brake Block Shaft


Lining Holder
ⓐ
Brake Arm

Spec. (1):
0.6 mm ≦ ⓐ ≦ 1.0 mm


Reel table torque measurement tape (100 mm dia.)
9.5 cm/sec.
tension scale
T Reel Table

Spec. (2):
100 g ~ 170 g (on scale)
(500 g · cm ~ 850 g · cm)

6-1-2. T Brake Torque Adjustment

Tool: Reel Table Torque Measurement Tape (100 mm dia.)
Tension Scale (200 g full scale)

Mode: EJECT completion/POWER OFF mode

Check procedure:

(1) Grasp the top of the T Reel Table While turning it about 30 degrees clockwise. Check that the clearance between Brake Arm and Lining Holder meets Spec. (2).

(2) Place the Reel Table Torque Measurement Tape onto the T Reel Table, and hook the Tension Scale to the end of the tool tape. While pushing left the T Tension Regulator, pull out the tape about 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets Spec. (2).

Adjustment procedure:
For Spec. (1)

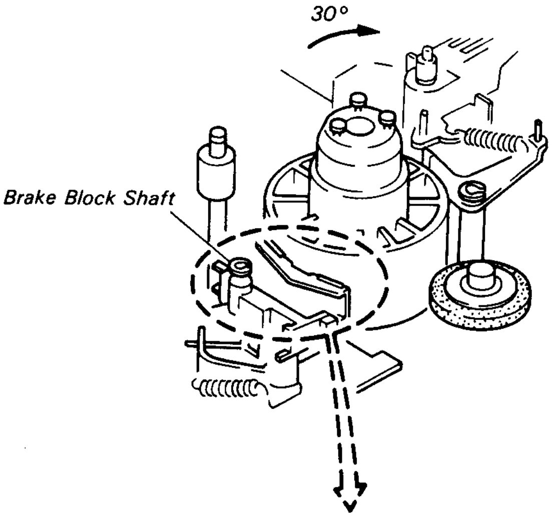
(1) Bend the Brake block Shaft toward the Reel Table, or in the opposite direction using a hand.

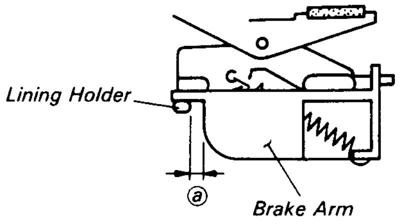
For Spec. (2)

(2) Clean the surface of the Reel Table using a cloth moistened with cleaning fluid.

(3) If does not meet the Spec. (2), replace the Lining Holder and recheck.

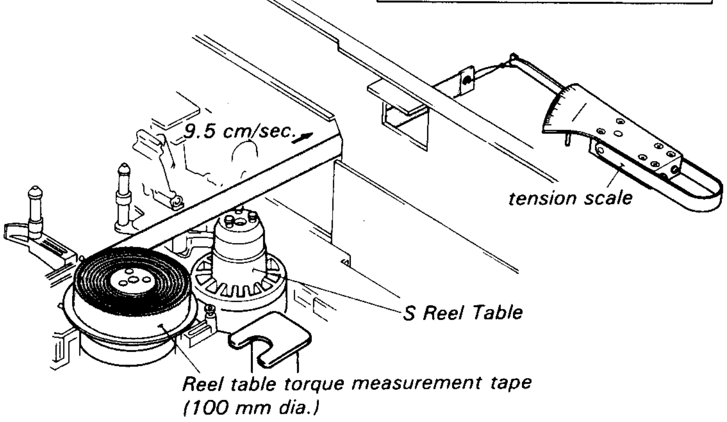
(4) If does not meet the specification in Step (3), replace the Reel Table and recheck.


30°
Brake Block Shaft


Lining Holder
ⓐ
Brake Arm

Spec. (1):
0.6 mm ≦ ⓐ ≦ 1.0 mm

Spec. (2):
100 g ∿ 170 g (on scale)
(500 g • cm ∿ 850 g • cm)


9.5 cm/sec.
tension scale
S Reel Table
Reel table torque measurement tape
(100 mm dia.)

6-1-3. REW Brake Torque Adjustment

Tool: Reel Table Torque Measurement Tape (100 mm dia.)
Tension Scale (50g full scale)

Check procedure:

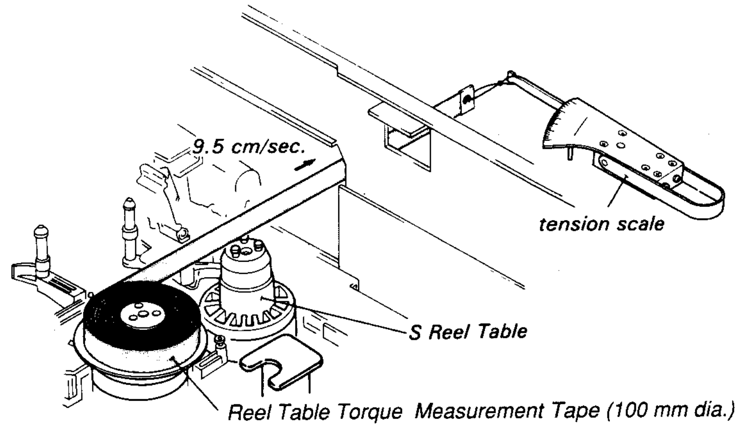
(1) Place the Reel Table Torque Measurement Tape onto the T Reel Table, and hook Tension Scale to the end of the tool tape.

(2) Select the unit into the REW mode. Pull out the tape about 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

(1) If does not meet the specification, replace R Brake Assembly and recheck.

(2) If does not meet the specification in Step (1), replace the Reel Table and recheck.


9.5 cm/sec.
tension scale
S Reel Table
Reel Table Torque Measurement Tape (100 mm dia.)

Spec.:
18 g ~ 36 g (on scale)
(90 g • cm ~ 180 g • cm)

6-2. F FWD/REW TORQUE ADJUSTMENT

- It is required that the Section 5-7-2. T Idler Solenoid Position Adjustment, and Section 5-7-3. S Idler Solenoid Position Adjustment are correct before initiating this adjustment.

Tool: Reel Table Torque Measurement Tape (100 mm dia.)
Tension Scale (500g full scale)

Mode: F FWD and REW modes

Check procedure:

F FWD Torque

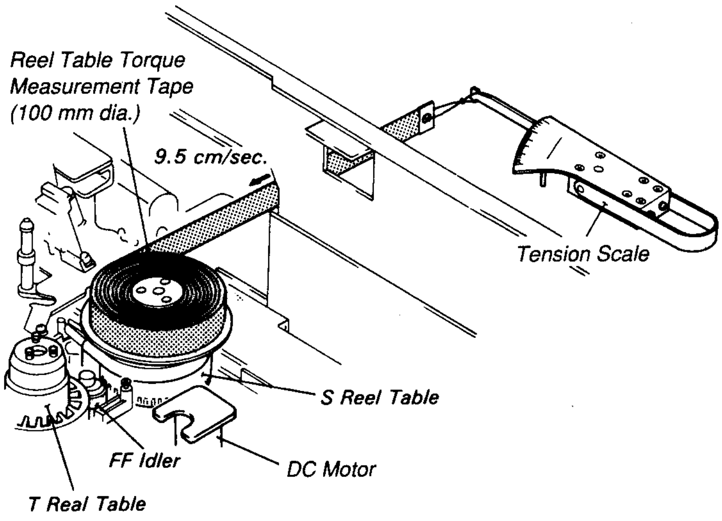
(1) Place the Reel Table Torque Measurement Tape onto the T Reel Table, and hook Tension Scale to the end of the tape. Pull out once the tape from the T Reel Table.

(2) Select the unit into the F FWD mode. Pull out the tape about 9.5cm/sec. Check that the scale reading meets the required specification.

REW Torque

(1) Place the Reel Table Torque Measurement Tool Tape on the S Reel Table, and hook a Tension Scale to the end of the tape. Pull out the tape from the S Reel Table.

(2) Select the unit into the REW mode. Pull out the tool tape about 9.5cm/sec. Check that the scale reading meets the required specification.



Spec.:
The Tension Scale readings of FF Torque and RWD Torque are more than 300 g • (more than 1500 g • cm)

Adjustment procedure:

Adjust both F FWD Torque and REW Torque by the following adjustment procedures.

(1) Clean the surfaces of the Reel Table, FF Idler and belt using a cloth moistened with cleaning fluid. Recheck the torque reading.

(2) If the Spec. at Step (1) does not meet, select the unit into F FWD or REW mode without a cassette tape. Check that the DC voltage at the terminals of DC motor is 10.5 ±1.5 V. If the DC voltage is out of the specification, check that the circuit of SY Board operates correctly.

(3) If the Specs. at Steps (1) and (2) do not meet, replace the Reel Table, FF Idler and belt.

6-3. FWD TORQUE ADJUSTMENT

Tool: Special Shorting Clip (Refer to the figure.)

Mode: 1/2 FWD SEARCH mode

Check procedure:

(1) Insert the KCS-20 cassette tape wound to the tape end portion.

(2) Select the unit into the FWD SEARCH X5 mode.

(3) Short between TP11 on SY-174 Board and GND using the Special Shorting Clip.

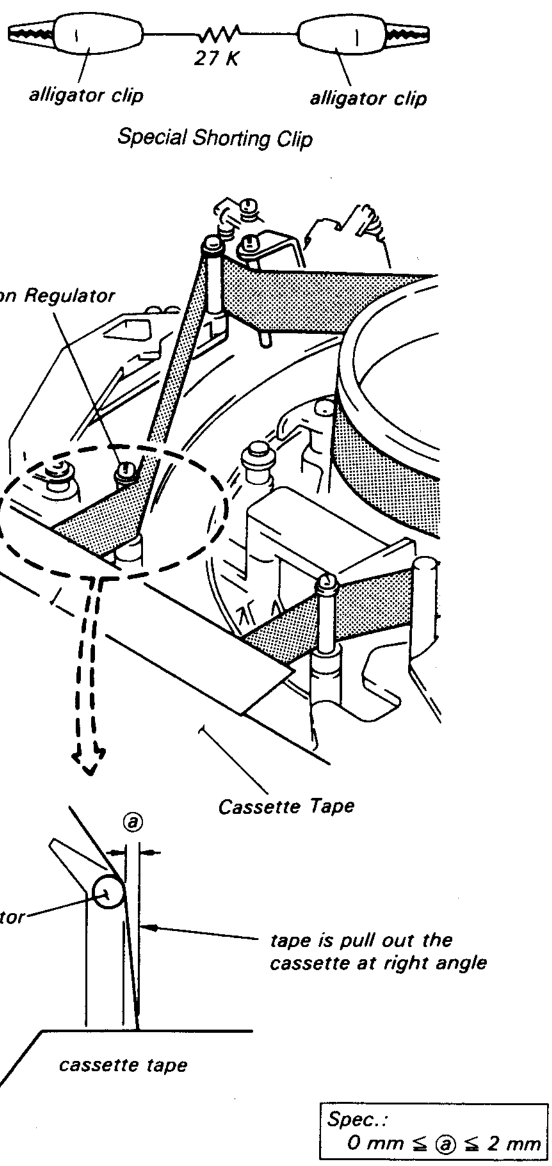
(4) Short between TP11 on SV-93H Board and GND using the Special Shorting Clip.

(5) Short between pin 5 of IC20 on SV-93H Board and GND with a Special Shorting Clip. The unit will select into the 1/2 FWD SEARCH mode.

(6) Check that the clearance between T Tension Regulator Arm and cassette tape meets the required specification.

Adjustment procedure:

(1) Adjust RV3 on SY-174 Board until it meets the required specification selecting into the FWD mode.


27 K
alligator clip
alligator clip
Special Shorting Clip
T Tension Regulator
Cassette Tape
ⓐ
T Tension Regulator
tape is pull out the cassette at right angle
cassette tape
Spec.:
0 mm ≦ ⓐ ≦ 2 mm

6-4. REV TORQUE ADJUSTMENT

Tool: Special Shorting Clip (Refer to Section 6-3.)

Mode: REV SEARCH mode

Check procedure:

(1) Insert the KCA-60 cassette tape wound to the tape beginning portion.

(2) Select the unit into the FWD SEARCH X5 mode.

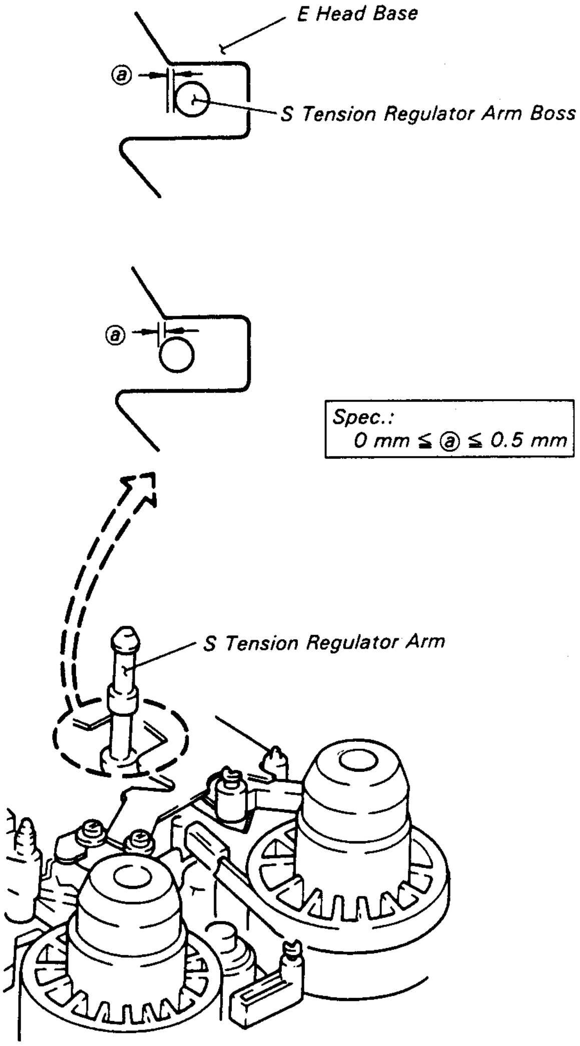
(3) Short between TP3 on SY-174 Board and GND using the Special Shorting Clip.

(4) Short between pin5 of IC20 on SV-93H Board and GND using the Special Shorting Clip. The unit will select into the 1/2 FWD SEARCH mode.

(5) Check that the clearance between S Tension Regulator Boss and bracket of Erase Head Base meets the required specification.

Adjustment procedure:

(1) Adjust RV2 on SY-174 Board until it meets the required specification.


E Head Base
ⓐ
S Tension Regulator Arm Boss
ⓐ
Spec.:
0 mm ≦ ⓐ ≦ 0.5 mm
S Tension Regulator Arm

6-5. F FWD BACK TENSION ADJUSTMENT

- It is required that Section 5-6-3. S Tension Regulator Operating Position Adjustment is correct before initiating this adjustment.
- It is required that Section 6-6. FWD Back Tension Adjustment is carried out after this adjustment.

Tool: Back Tension Adjustment Tool
Reel Table Torque Measurement Tape (100mm dia.)
Tension Scale (50g full scale)

Preparation:

(1) Turn the POWER ON, and select the unit into the FR-STOP mode. When the POWER turns ON, the S Drawer Arm moves and the unit automatically selects into the FR-STOP mode.

(2) Turn the Pulley of the Gear Box Block in the direction of the Threading Ring until the S Drawer Roller is situated in front of CTL PB Head using a hand.

(3) Place the Back Tension Adjustment Tool onto the tape.

(4) Place the tool tape onto the S Reel Table, and pull out the tape as shown in the figure. Check that the tape does not curl at the flange of the S Drawer Roller.

(5) Turn the Pulley in the opposite direction in Step (2) until the S Drawer Roller is engaged with the S Holder.

(6) Hook the Tension Scale to the end of the tape.

Check procedure:

(1) Press the F FWD button, and select the unit into the F FWD mode.

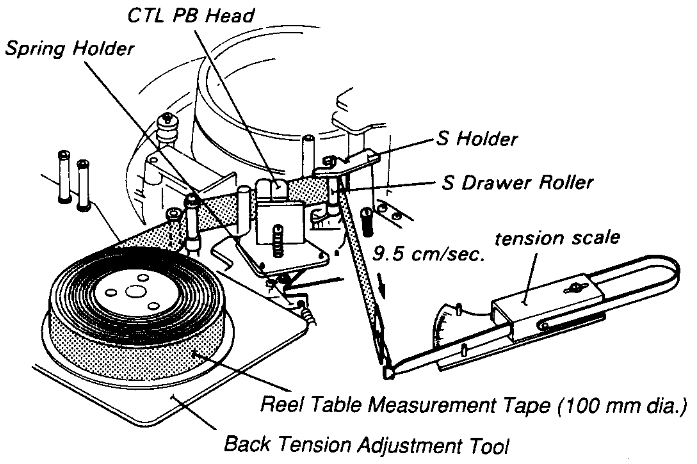
(2) Pull out the Tension Scale about 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

(1) Move the position of the S Tension Spring Holder to meet the required specification using a flatblade screwdriver (3mm dia.).

(2) Carry out the Check procedures after the adjustment.

(3) Carry out Section 6-6. FWD Back Tension Adjustment.



Spec.:
40 g ~ 47 g (on scale)

6-6. FWD BACK TENSION ADJUSTMENT

- It is required that the Section 5-6-3. S Tension Regulator Operating Position Adjustment, and Section 6-5. F FWD Back Tension Adjustment are correct before initiating this adjustment.

Tool: Back Tension Adjustment Tool.
Reel Table Torque Measurement Tape (100mm dia.)
Tension Scale (100g full scale)

Preparation:

(1) Push Skew Lock Arm in the direction of the arrow.

(2) Turn the POWER ON, and select the unit into the FR-STOP mode. When the POWER turns ON, the S Drawer Roller moves and the unit automatically selects into the FR-STOP mode.

(3) Turn the pulley of the Gear Box Block in the direction of the Threading Ring until the S Drawer Roller is situated in front of the CTL PB Head using a hand.

(4) Place the Back Tension Adjustment Tool onto the tape.

(5) Place the tool tape on the S Reel Table, and pull out the tape as shown in the figure. Check that the tape does not curl at the flange of the S Drawer Roller.

(6) Turn the Pulley of the Gear Box in opposite direction in Step (3) until the S Drawer Roller is engaged with the S Holder.

(7) Hook the Tension Scale to the end of tape.

Check procedure:

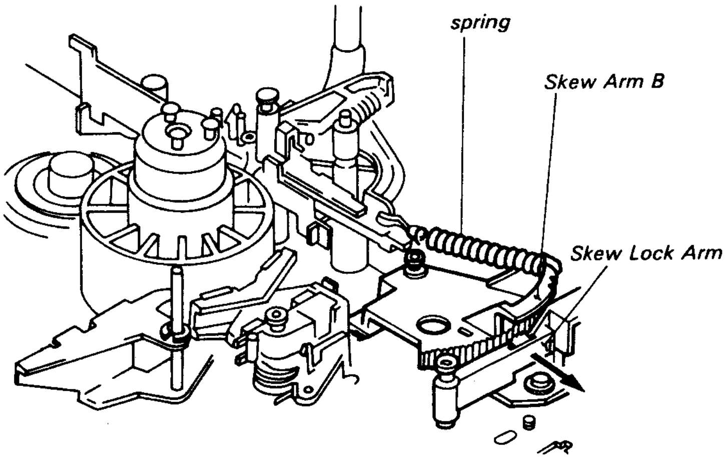
(1) Press the PLAY button, and select the unit into the PLAY mode.

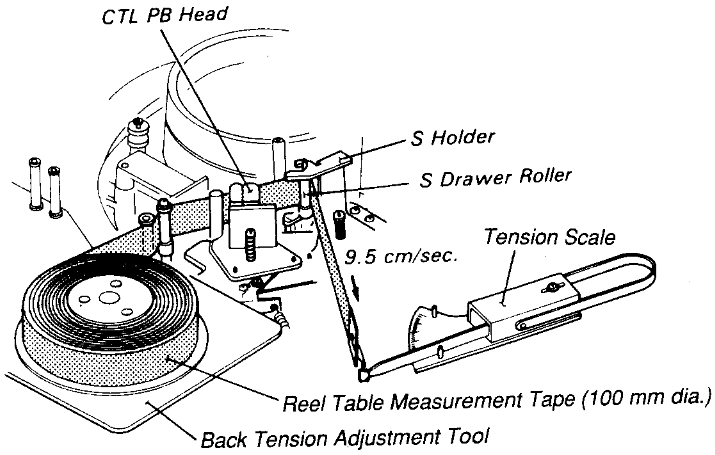
(2) Pull out the tape about 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

(1) Change the position of the Skew Arm B Spring to meet the required specification.

(2) Carry out the Check procedures after the adjustment.




CTL PB Head
S Holder
S Drawer Roller
Tension Scale
9.5 cm/sec.
Reel Table Measurement Tape (100 mm dia.)
Back Tension Adjustment Tool

Spec.:
70 g ~ 75 g (on scale)

SECTION 7
TAPE PATH ALIGNMENT

7-1. F FWD/REW MODES TAPE PATH ADJUSTMENT

Check procedure:

(1) Insert the KCA-60 cassette tape which has advanced about half way through (about 30 minutes).

(2) Check that the tape tension is equal around T Drawer Arm. (Spec.1)

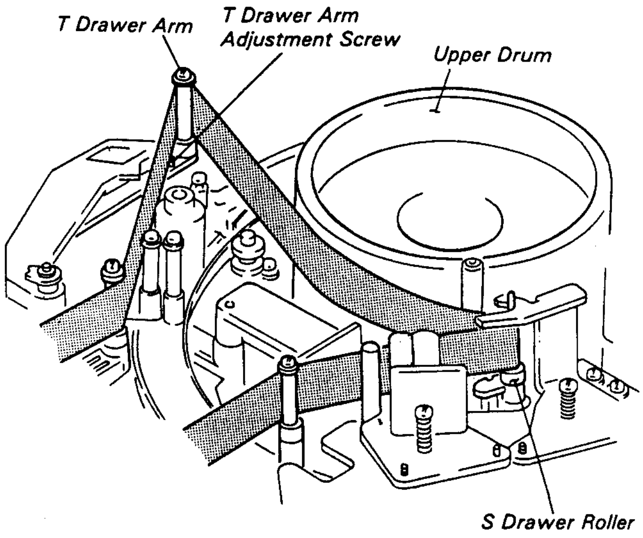
(3) Check that the tape runs without any curling at the upper and lower flanges of S Drawer Roller. (Spec. 2)

(4) Select the unit into the REW mode after selecting the unit into the STOP mode. Check that the tape runs without any curling at the S Drawer Roller. (Spec. 3)

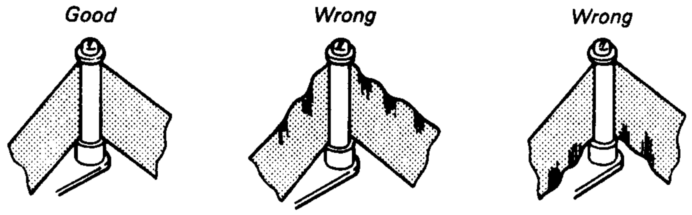
(5) Select the unit into the F FWD mode. Check that the tape runs without any curling at the S Drawer Roller and T Drawer Arm. (Spec. 4)

Adjustment procedure:

(1) Turn T Drawer Arm Adjustment Screw to meet the required specifications.


T Drawer Arm
T Drawer Arm Adjustment Screw
Upper Drum
S Drawer Roller

Spec. (1):


Good
Wrong
Wrong

7-2. T CORRECTION GUIDE SLANTNESS ADJUSTMENT

Tool: Dental Mirror

Check procedure:

(1) Insert the KCA-60 cassette tape, and select the unit into the FR-STOP mode. Turn quickly the POWER OFF just after Pinch Roller passes in front of T Correction Guide.

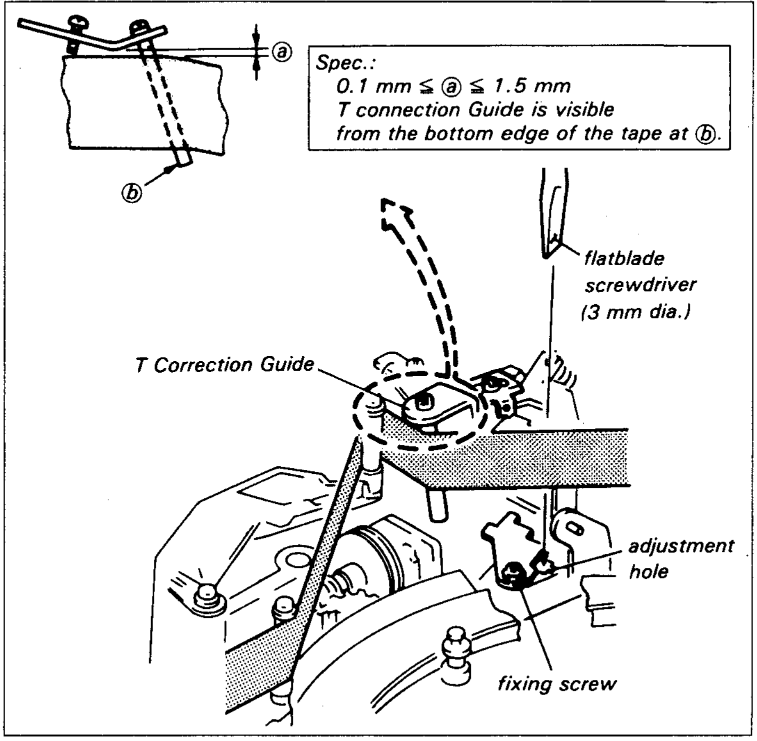
(2) Check that the clearance between the upper bracket of the T Correction Guide and the top edge of the tape meets the required specification after this adjustment.

Adjustment procedure:

(1) Loosen the fixing screw of the T Correction Guide 1/4 to 1/2 turn.

(2) Adjust the position of the T Correction Guide to meet the required specification using a flatblade screwdriver (3mm dia.).

(3) Carry out Section 7-3. PLAY Mode Tape Path Adjustment after this adjustment.


ⓐ
ⓑ
Spec.:
0.1 mm ≦ ⓐ ≦ 1.5 mm
T connection Guide is visible
from the bottom edge of the tape at ⓑ.
flatblade
screwdriver
(3 mm dia.)
T Correction Guide
adjustment
hole
fixing screw

7-3. PLAY MODE TAPE PATH ADJUSTMENT (1)

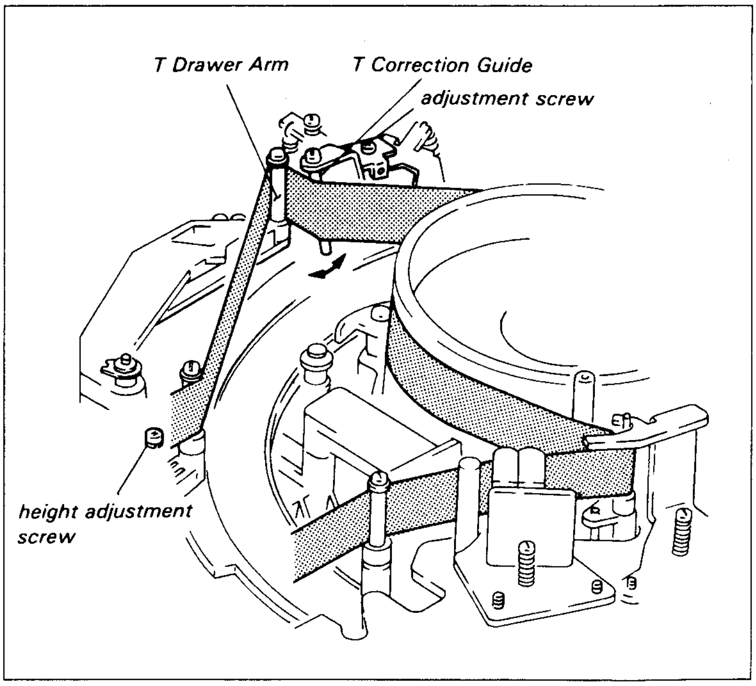
- It is required that Section 7-2. T Correction Guide Slantness Adjustment and Section 7-1. F FWD/REW Modes Tape Path Adjustment are correct before initiating this adjustment.

Check procedure:

(1) Insert the KCA-60 cassette tape which has been advanced about half way through (30 minutes). Select the unit into the PLAY mode.

(2) Check that the tape runs without any curling at the upper and lower flanges of the T Drawer Guide. (Spec. 1)

(3) Check that tape tension is equal at the top and bottom edges of the tape around the T Drawer Guide. Check that the tape runs without any curling at the lower flange of the T Drawer. (Spec. 2)


T Drawer Arm
T Correction Guide
adjustment screw
height adjustment
screw

Adjustment procedure:
For Spec. 1
Adjust the height of the T Drawer Arm by turning the T Drawer Arm Height Adjustment Screw.

For Spec. 2
In the case of the winkles occur at the upper flange, or the lower flange of the T Drawer has any curling.
Turn adjustment screw clockwise.

In the case of the winkles occur at the lower flange, or the lower flange of the T Drawer has any curling.
Turn the Adjustment screw counterclockwise.

7-4. PLAY MODE TAPE PATH ADJUSTMENT (2)

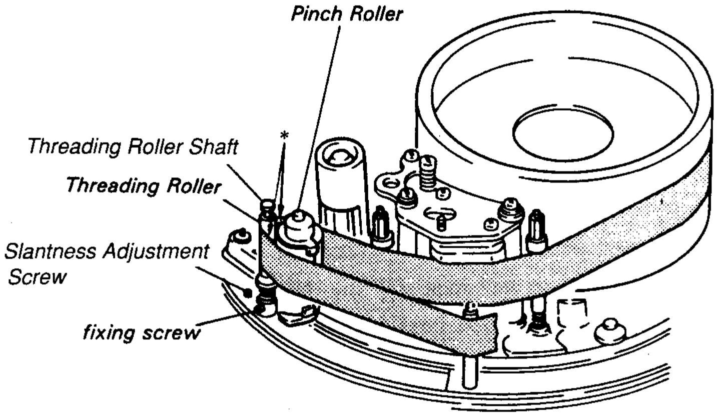
Tool: Dental Mirror

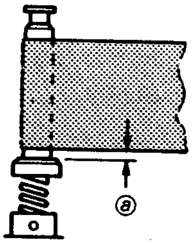
Mode: PLAY mode with a cassette tape

Check procedure:
(1) Insert the KCA-60 cassette tape which has been advanced about half way through (about 30 minutes). Select the unit into the PLAY mode.

(2) Check that tape tension is equal at the top and bottom edges of the tape shown at 2 * marks. (Spec. (1))

(3) Check that the clearance between the lower flange of Threading Roller, and bottom edge of the tape meets the required Spec. (2).





Spec. (2):
0.01 mm ≤ ⓐ ≤ 0.15 mm

Adjustment procedure:
(1) Loosen the fixing screw at the bottom of the Threading Roller.

For Spec. 1
Adjust the Slantness of the Threading Roller turning a Slantness Adjustment Screw clockwise.

Carry out Section 7-5. REV Mode Tape Path Adjustment, and Section 7-6. Tape Path Adjustment Around The Pinch Roller after this adjustment.

For Spec. 2
Adjust the height of the Threading Roller turning Threading Roller Shaft.

(2) Check that the slantness, and height meet the required specifications (1) and (2).

(3) Tighten the fixing screws of the Threading Roller after this adjustment, and carry out the Check procedures.

7-5. REV MODE TAPE PATH ADJUSTMENT

Check Procedure:

(1) Insert the KCA-60 cassette tape which has been advanced about half way through (about 30 minutes).

(2) Select the unit into the REV SEARCH mode. Check that the tape runs in contact with the lower flange of the Threading Roller without curling.

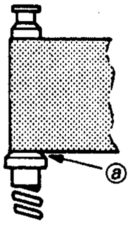
(3) Select the unit into the FWD SEARCH mode. Check that the clearance between the lower flange of the Threading Roller and bottom edge of the tape meets the required specification. Check that the tape does not curl at the lower and upper flange of TG-4.

Adjustment procedure:

(1) Fine adjust the height of the Threading Roller turning the Threading Roller Shaft.

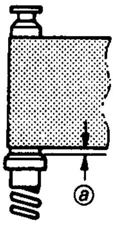
(2) Carry out the Section 7-4. PLAY Mode Tape Path Adjustment (2) after this adjustment.

<REV SEARCH>



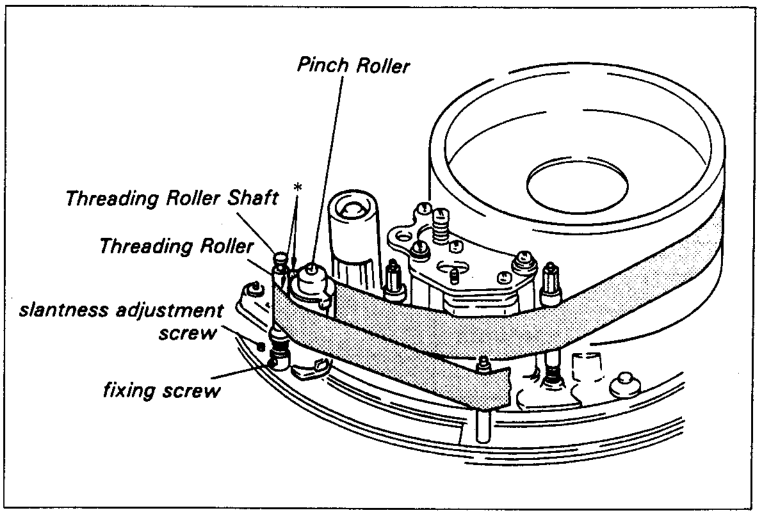
Spec.:
The tape runs in contact with ⓐ without curling.

<FWD SEARCH>



Spec.:
0.01 mm ≦ ⓐ ≦ 0.15 mm

7-6. TAPE PATH ADJUSTMENT AROUND PINCH ROLLER


Pinch Roller
Threading Roller Shaft
*
Threading Roller
slantness adjustment screw
fixing screw

Check procedure:

(1) Insert the KCA-60 cassette tape wound to the tape beginning portion.

(2) When selecting the unit into the PLAY mode, check that the tape wrinkle does not appear. If the tape wrinkle appears, check that it disappears within 2 sec.

(3) When selecting the unit into the REV SEARCH mode, check that the tape wrinkle does not appear. If the tape wrinkle appears, check that it disappears within 2 sec.

(4) When selecting the unit into the FWD SEARCH mode, check that the tape wrinkle does not appear. If the tape wrinkle appear, check that it disappears within 2 sec.

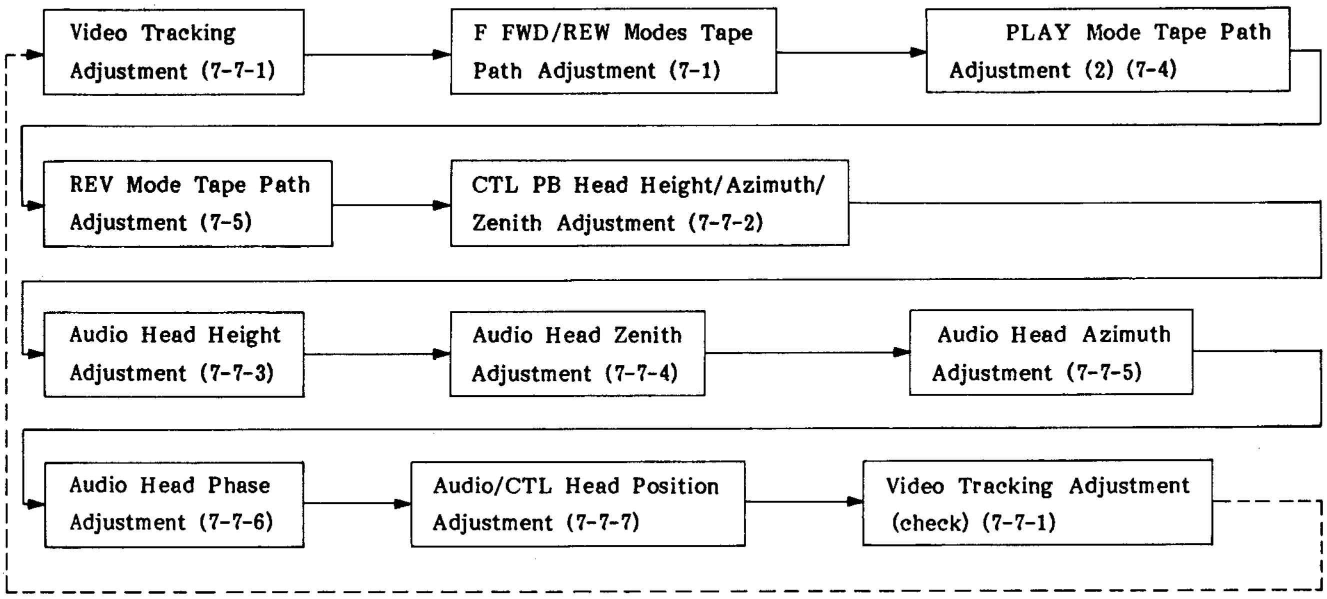
Adjustment procedure:

(1) Adjustment the slantness and height of the Threading Roller until it meets the required specification.

(2) Carry out Section 7-4. PLAY mode Tape Path Adjustment, and Section 7-7. Tracking Adjustment after this adjustment.

7-7. TRACKING ADJUSTMENT

- Carry out Tracking Adjustment as follows.


Video Tracking Adjustment (7-7-1)
F FWD/REW Modes Tape Path Adjustment (7-1)
PLAY Mode Tape Path Adjustment (2) (7-4)
REV Mode Tape Path Adjustment (7-5)
CTL PB Head Height/Azimuth/ Zenith Adjustment (7-7-2)
Audio Head Height Adjustment (7-7-3)
Audio Head Zenith Adjustment (7-7-4)
Audio Head Azimuth Adjustment (7-7-5)
Audio Head Phase Adjustment (7-7-6)
Audio/CTL Head Position Adjustment (7-7-7)
Video Tracking Adjustment (check) (7-7-1)

7-7-1. Video Tracking Adjustment

Tool: Alignment Tape, RP5-3SA (For UC)
Alignment Tape, RP5-2SC (For EK)
Flatness Plate
Oscilloscope
Dental Mirror

Preparation:

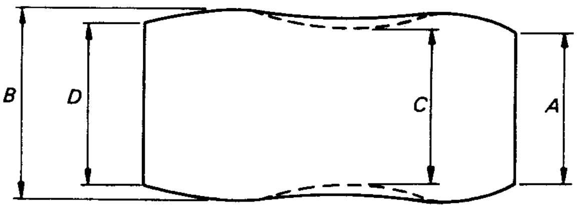
(1) Connect Oscilloscope to TP31 on VO-39 Board.

(2) Playback the color bars signal portion of the alignment tape.

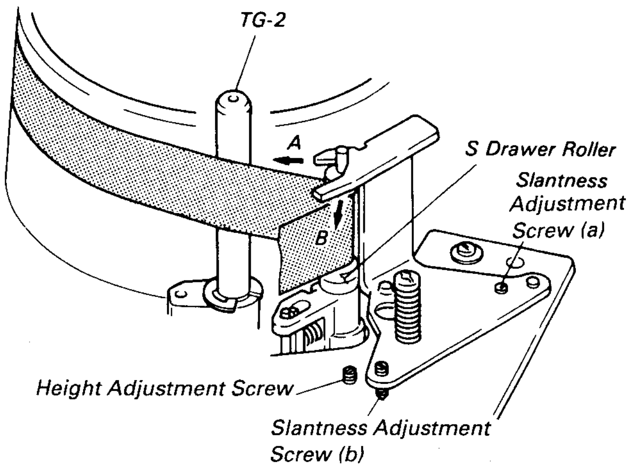
Check procedure:

(1) Check that RF envelope waveform maintains a flat while the amplitude in creases and decreases turning TRACKING control knob.

(2) Check that fluctuation and head-to-tape contact of the RF envelope meet the required specification at the center detent position of the TRACKING control knob.



Spec.: <head to tape contact>
$\frac{B}{A} \geq 0.70$ $\frac{C}{A} \geq 0.70$
<fluctuation>
$\frac{D}{A} \geq 0.90$


TG-2
A
B
S Drawer Roller
Slantness Adjustment Screw (a)
Height Adjustment Screw
Slantness Adjustment Screw (b)

Adjustment procedure:

- S Drawer Roller has 3 adjustment screws. The 3 adjustment screws function are as follows.

(i) Slantness Adjustment Screw (a)
Turn this screw clockwise, and the S Drawer Roller slants in the direction of arrow A.

(ii) Slantness Adjustment Screw (b)
Turn this screw counterclockwise, and the S Drawer Roller slants in the direction of arrow B.
This screw is used for removing tape curl at the upper flange of the S Drawer Roller. This screw is used only when the tape curls at the flange of the S Drawer Roller, even though the RF output waveform meets the required specification.

(iii) Height Adjustment Screw
Turn this screw clockwise, and the height of the S Drawer Roller lowers.

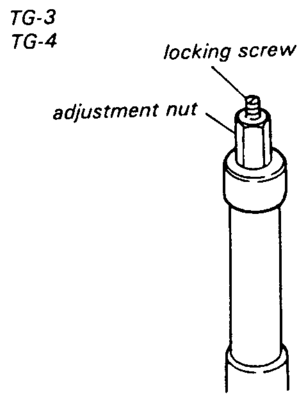
- When tape guides (TG-3 and TG-4) are adjusted, adjust the height by turning the height adjustment nut after loosing the locking screw about 1 turn.

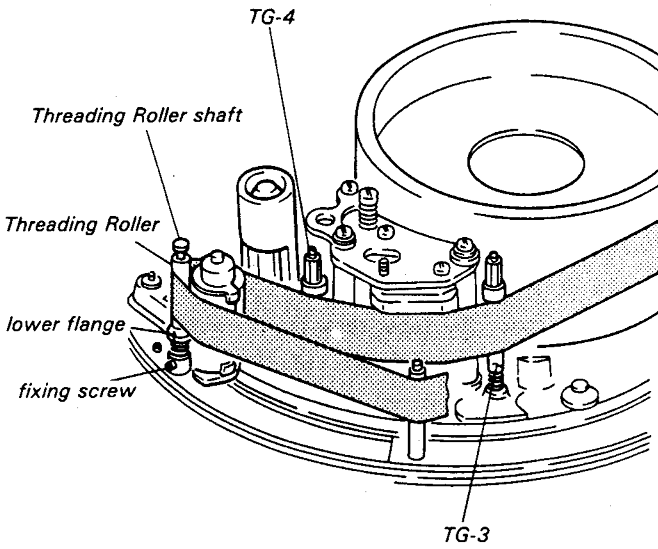
When tracking at the entrance side of the drum is not good.

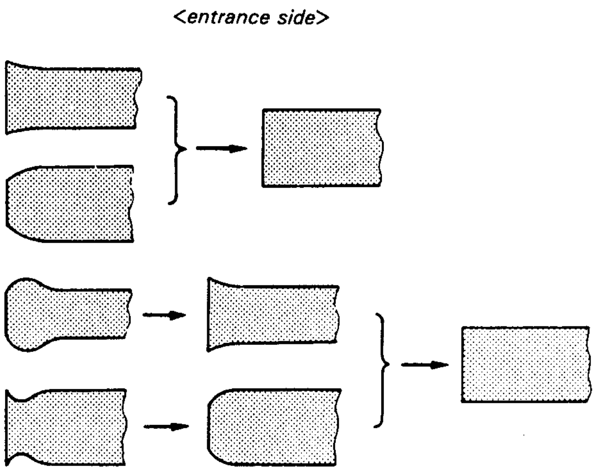
(1) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.

(2) Adjust the height adjustment screw and adjustment screw (a) of the S Drawer Roller until the RF envelope of the entrance side is flat.

Note: Check that tape tension is equal at the top and bottom of the tape.
Check that the tape runs in contact with the upper flange of the S Drawer Roller without any curling.







When tracking at the center of the drum is not good. (It is required that tracking adjustment at the entrance side of the drum is correct before initiating this adjustment.)

(3) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.

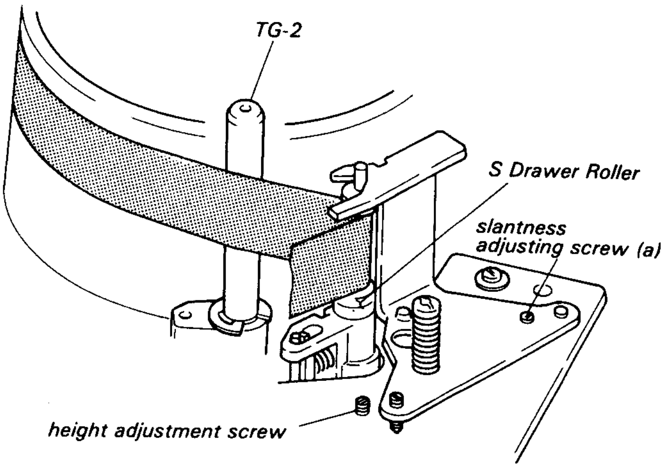
(4) Adjust the height adjustment screw and slantness adjustment screw (a) of the S Drawer Roller until the RF envelope at the center of the drum is flat.

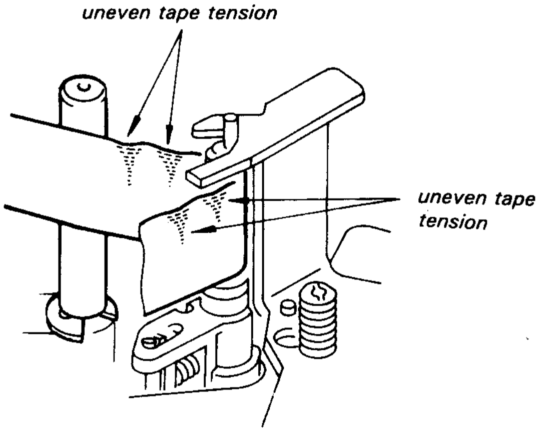
Note: Adjust the slantness adjustment screw (a) clockwise within a 10 degree angle. When the tracking at the center of the drum is adjusted, the FR envelope at the entrance side of the drum should remain flat.
Check that the tape runs in contact with the upper flange of the S Drawer Roller without any curling.

(5) If the RF envelope is not flat in Step (4), adjust the height of TG-3 and TG-4.

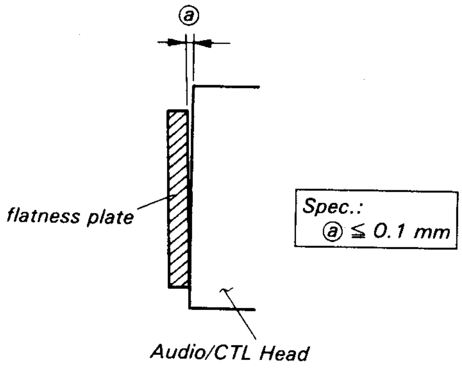
(6) If the RF envelope is not flat in Steps (4) and (5), knock at the bottom of the Audio/CTL Head against the tape within the allowable range. Readjust the height of TG-3, and TG-4.

(7) Check that the clearance between the bottom edge of the tape and lower flange of the Threading Roller is from 0.01mm to 0.15mm. If it is out of the specification, adjust the height of the Threading Roller by turning the Threading Roller Shaft.


TG-2
S Drawer Roller
slantness adjusting screw (a)
height adjustment screw


uneven tape tension
uneven tape tension

<zenith adjustment for the Audio/CTL Head>


ⓐ
flatness plate
Spec.:
ⓐ ≦ 0.1 mm
Audio/CTL Head

- When loosening the fixing screw of the Threading Roller, press the STOP button. When the Threading Roller is situated near the Sub-ring Stopper, turn the POWER OFF. Loosen the fixing screw of the Threading Roller using a L-shaped hexagonal wrench. Tighten the fixing screw and check that it meet the required specification after this adjustment.

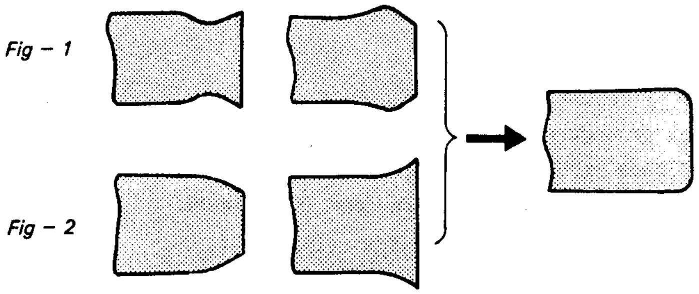
When tracking at the exit side of the drum is not good.

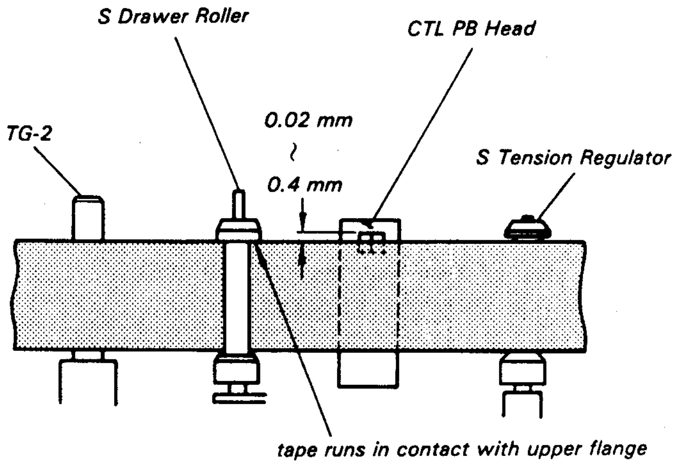
(8) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.

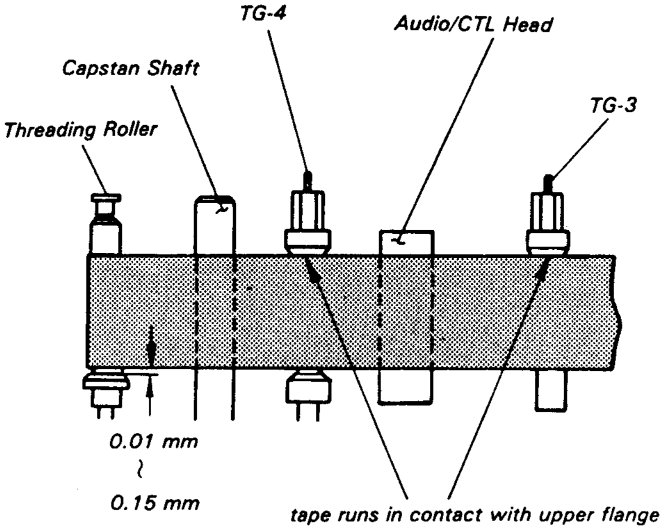
(9) If the RF envelope is not flat as shown in fig. 1, adjust the height of TG-4 until the RF envelope is flat. Adjust the height of TG-3 so that the tape runs in contact with the upper flange after this adjustment.
If the RF envelope is not flat as shown in fig. 2, adjust the height of TG-3 and TG-4 until the RF envelope is flat. If it is not flat, knock at the bottom of the Audio/CTL Head against the tape within the allowable range. Readjust the height of TG-3 and TG-4.

(10) Check that the clearance between the bottom edge of the tape and lower flange of the Threading Roller is 0.01 mm to 0.15 mm. If it is out of the specification, adjust the height of the Threading Roller by turning the Threading Roller shaft.

<entrance side>




S Drawer Roller
CTL PB Head
TG-2
0.02 mm
~
0.4 mm
S Tension Regulator
tape runs in contact with upper flange


TG-4
Audio/CTL Head
Capstan Shaft
TG-3
Threading Roller
0.01 mm
~
0.15 mm
tape runs in contact with upper flange

7-7-2. CTL PB Head Height/Azimuth/Zenith Adjustment

- CTL PB Head Height, Azimuth and Zenith Adjustments are closely related. When carrying out any of these adjustments, be sure carry out the other 2 adjustments together.

Tool: Flatness Plate

Check procedure:

(1) Check that the clearance between Full Erase Head and TG-1 meets the required specification. (Spec. (2) Azimuth check)

(2) Check that the clearance between the Full Erase Head and Flatness Plate meets the required specification. (Spec. (3) Azimuth check)

(3) Insert the cassette tape, and select the unit into the PLAY mode.

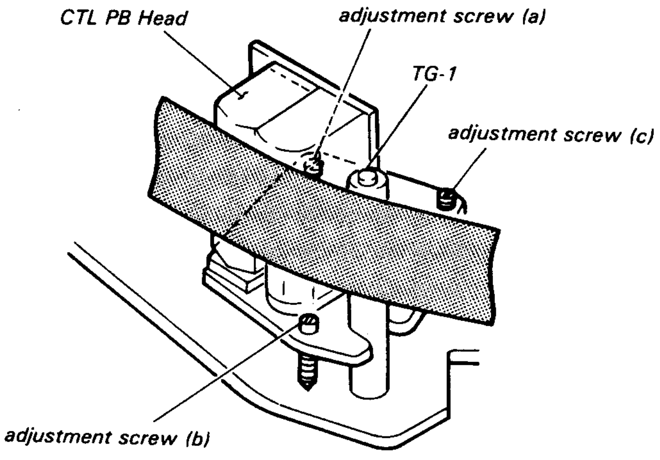
(4) Check that the specification between the top edge of tape and the CTL PB Head meets the required specification. (Spec. (1) Height check)

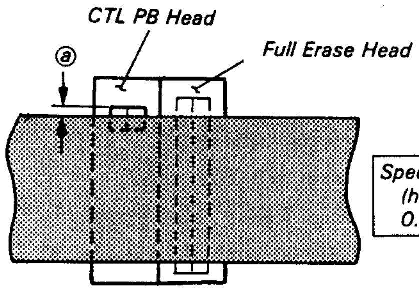
Adjustment procedure:

(1) Turn the adjustment screw (a) to meet the required Spec. (2).

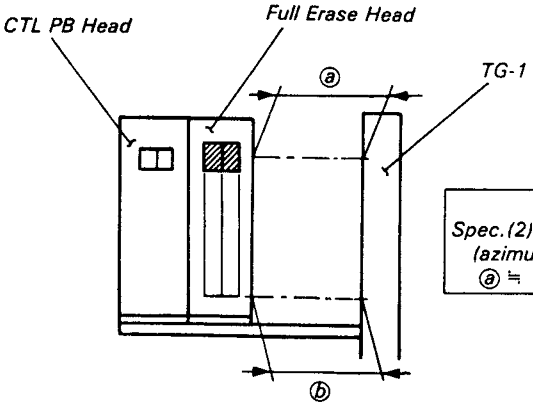
(2) Turn the adjustment screw (b) to meet the required Spec. (3).

(3) Turn the 3 adjustment screws an equal amount clockwise or counterclockwise to meet the required Spec. (1).

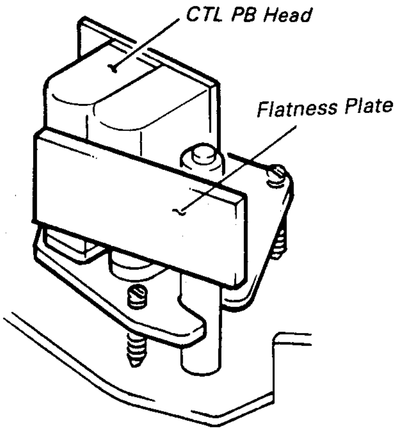

CTL PB Head
adjustment screw (a)
TG-1
adjustment screw (c)
adjustment screw (b)

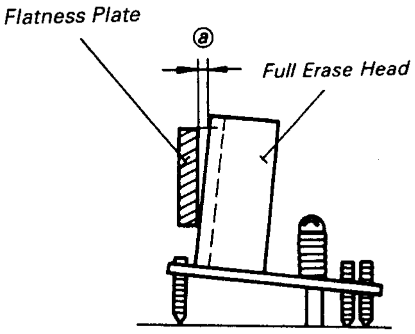

CTL PB Head
ⓐ
Full Erase Head

Spec. (1):
(height)
0.02 mm ≤ ⓐ ≤ 0.4 mm

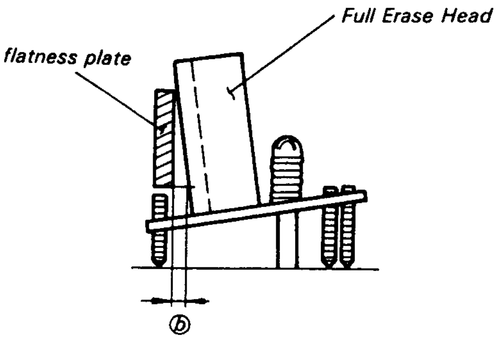

CTL PB Head
Full Erase Head
ⓐ
TG-1
ⓑ

Spec. (2):
(azimuth)
ⓐ ≒ ⓑ


CTL PB Head
Flatness Plate


Flatness Plate
ⓐ
Full Erase Head

Spec.(3):
(zenith)
ⓐ ≤ 0.1 mm


Full Erase Head
flatness plate
ⓑ

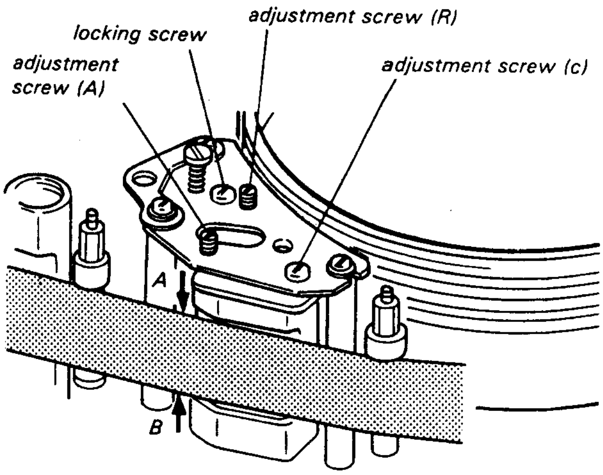
7-7-3. Audio Head Height Adjustment

Tool: Alignment Tape, RR5-3SA (For UC)
Alignment Tape, RR5-2SC (For EK)
VTVM or Oscilloscope

Preparation:

(1) Connect VTVM or Oscilloscope to AUDIO OUT CH-1 and CH-2 connectors on the Connector Panel.

(2) Playback the audio 1 kHz signal portion of the alignment tape.



Spec.:
- *The level increase of the CH-1 is less than 0.5 dB when pressing down at A.*
- *The level increase of the CH-2 is less than 0.5 dB when pushing up at B.*

Check procedure:

(1) Check that the CH-1 output level increase is less than 0.5 dB when pressing down shown at A. If it is out of the specification, carry out Adjustment procedures (1) and (2).

(2) Check that the CH-2 output level increase is less than 0.5 dB when pushing up shown at B. If it is out of the specification, carry out Adjustment procedures (3) and (4).

Adjustment procedure:

(1) Turn adjustment screws (A) and (R) an equal amount clockwise after loosing a locking screw. Turn adjustment screw (C) an equal amount counterclockwise after loosing the locking screw.

(2) Check the height of the Audio Head referring to Check procedure after tightening the locking screw.

(3) Turn the adjustment screws (A) and (R) an equal amount clockwise after loosing the locking screw. Turn the adjustment screw (C) an equal amount counterclockwise after loosing the locking screw.

(4) Check the height of the Audio Head referring to Check procedure after tightening the locking screw.

7-7-4. Audio Head Zenith Adjustment

Tool: Flatness Plate

Check procedure:

(1) When the Flatness Plate knocks against the Audio Head and TG-3, check that the clearance between the Audio Head and Flatness Plate meets the required specification.

Adjustment procedure:

In the case of the clearance at the top of the Audio Head is out of specification.

(1) Turn the adjustment screw (R) counterclockwise.

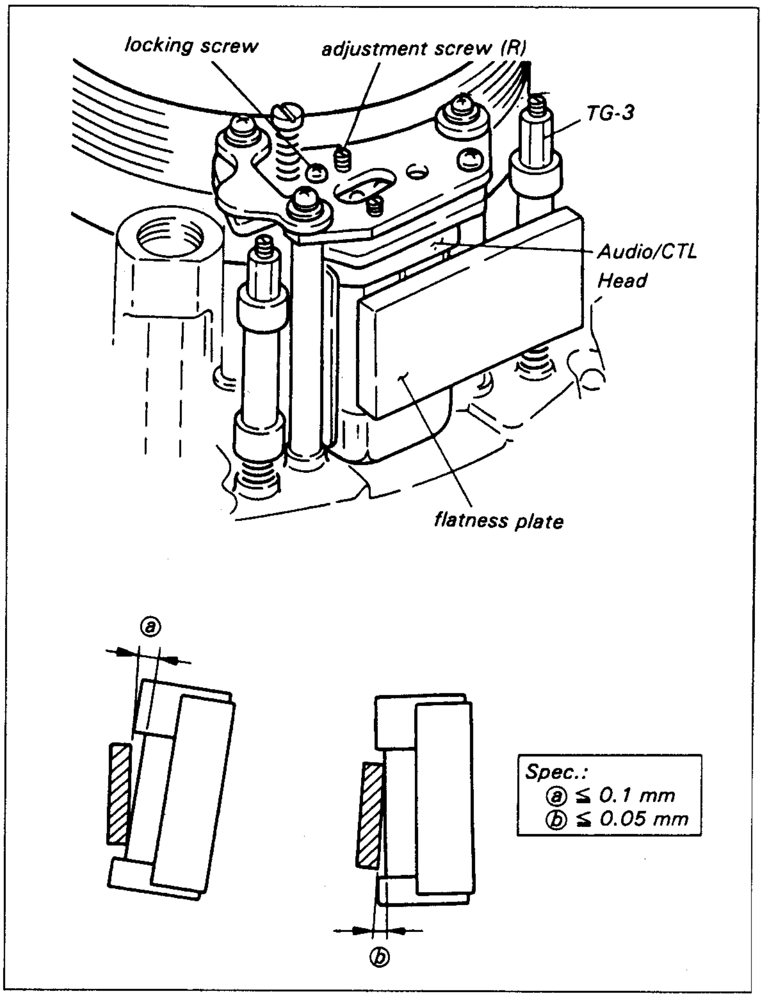
(2) Recheck the zenith after tightening the locking screw.

In the case of the clearance at the bottom of the Audio Head is out of specification.

(3) Loosen the locking screw 1/4 to 1/2 turn.

(4) Turn the adjustment screw (R) clockwise.

(5) Recheck the zenith after tightening the locking screw.



Spec.:
ⓐ ≦ 0.1 mm
ⓑ ≦ 0.05 mm

7-7-5. Audio Head Azimuth Adjustment

Tool: Alignment Tape, RR5-3SA (For UC)
Alignment Tape, RR5-3SC (For EK)
VTVM or Oscilloscope

Preparation:

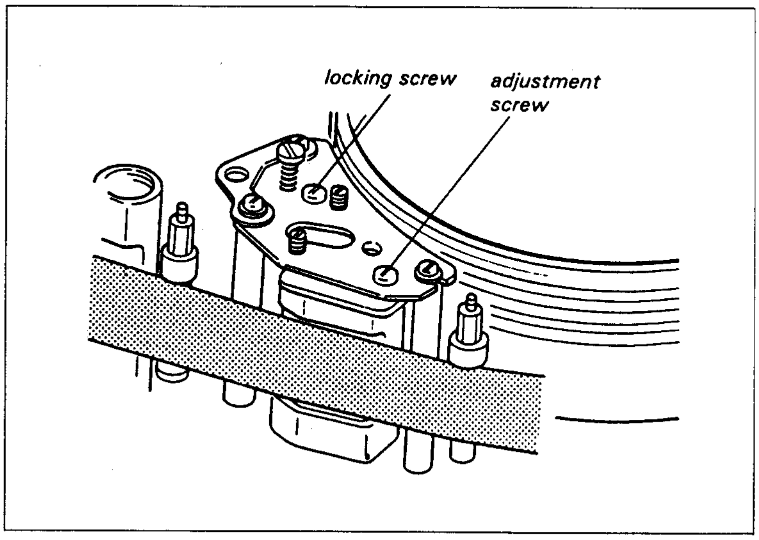
(1) Connect the VTVM or Oscilloscope to the AUDIO OUT CH-1 or CH-2 connector on the Connector Panel.

(2) Playback the audio 10kHz signal portion of the alignment tape.

Adjustment procedure:

(1) Adjust the audio output level to maximum by turning the adjustment screw after loosing the locking screw.

(2) Tighten the locking screw, and carry out the Check procedure.



7-7-6. Audio Head Phase Adjustment

Tool: Alignment Tape, RR5-3SA (For UC)
Alignment Tape, RR5-2SC (For EK)
Oscilloscope

Preparation:

(1) Connect the horizontal and vertical terminals of the Oscilloscope to the AUDIO OUT CH-1 and CH-2 connectors on the Connector Panel.

(2) Playback the audio 1kHz signal portion of the alignment tape.

(3) Adjust the scope for a lissajous waveform with horizontal and vertical amplitudes of 6cm.

Check procedure:

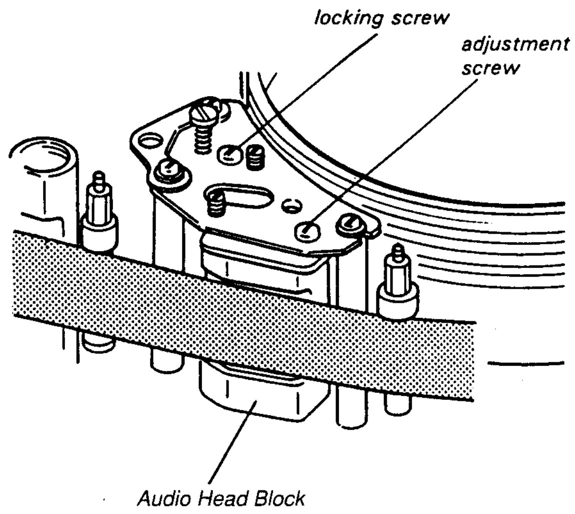
(1) Playback the audio 1 kHz signal portion of the alignment tape, and check that the vertical amplitude at the center of the horizontal direction meets the required specification.

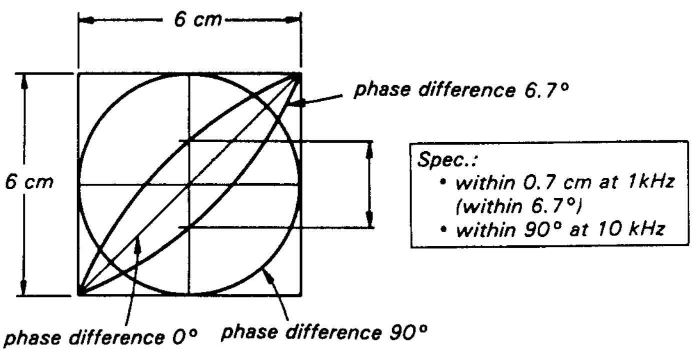
(2) Playback the audio 10kHz signal portion of the alignment tape, and check that the lissajous waveform meets the required specification.

Adjustment procedure:

(1) Adjust the phase by turning the adjustment screw after loosing the locking screw 1/4 to 1/2 turn.

(2) Recheck the phase after tightening the locking screw.





Spec.:
- *within 0.7 cm at 1kHz (within 6.7°)*
- *within 90° at 10 kHz*

7-7-7. Audio/CTL Head Position Adjustment

Tool: Alignment Tape, RR5-3SA (For UC)
Alignment Tape, RR5-2SC (For EK)
Oscilloscope
Eccentricity Screwdriver (5 mm dia.)

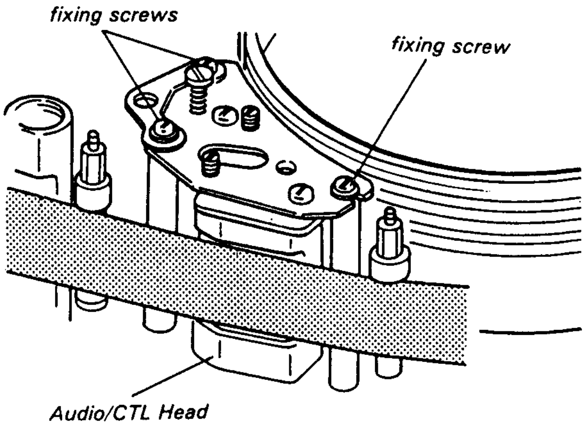
Preparation:

(1) Connect the Oscilloscope to TP31 on VO-39 Board and the EXT. TRIG to TP34 on VO-39 Board.

(2) Playback the color bar portion of the alignment tape.

Check procedure:

(1) While turning the TRACKING control knob, check that the RF envelope waveform has maximum amplitude at the center detent position of the TRACKING control knob.



Adjustment procedure:

(1) Loosen 3 fixing screws 1/4 to 1/2 turn.

(2) Adjust the position of the Audio/CTL Head to meet the required specification using an eccentric screwdriver.

7-8. VIDEO HEAD DIHEDRAL ADJUSTMENT

Tool: Dihedral Adjustment Screwdriver
Alignment Tape, RR5-3SA (For UC)
Alignment Tape, RR5-2SC (For EK)
Monitor TV

Check procedure:

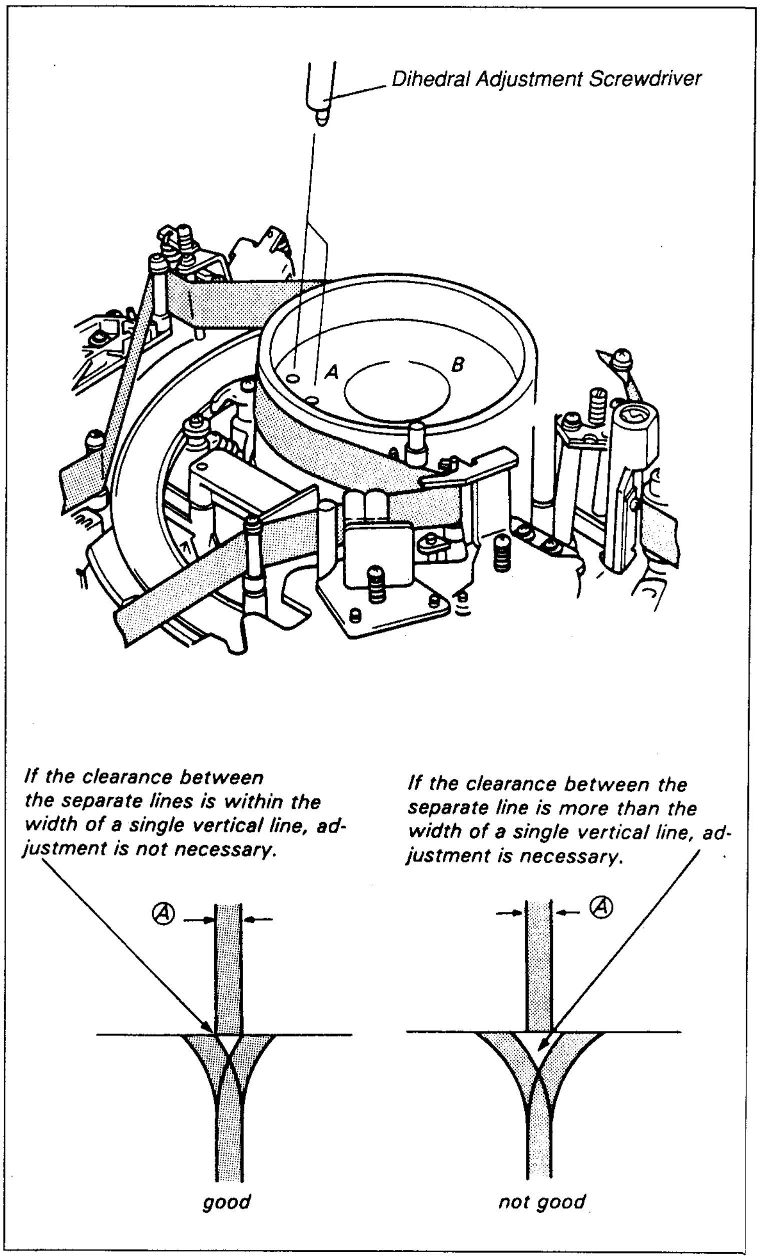
(1) Playback the monoscope signal portion of the alignment tape.

(2) Check the distortion of the monoscope signal under the switching pulse. If the clearance between the separate lines is within the width of a vertical line, the adjustment is not necessary. If the clearance of the separate lines is more than the width of a vertical line, the adjustment is necessary.

Adjustment procedure:

(1) Insert eccentric screwdriver in the adjustment hole of the white lead, and carry out dihedral adjustment.

(2) Playback the monoscope signal portion of the alignment tape. If the distortion has become worse, insert an adjustment hole in the other adjustment hole and carry out the dihedral adjustment.



If the clearance between the separate lines is within the width of a single vertical line, adjustment is not necessary.

If the clearance between the separate line is more than the width of a single vertical line, adjustment is necessary.

good

not good

SECTION 8
POWER SUPPLY/SYSTEM CONTROL ALIGNMENT

〔Equipment Required〕

- DC Voltmeter (ADVANTEST TR6845 or equivalent)
- Alignment tape : RR5-3SA NTSC (Part No. 8-960-015-04)
- Alignment tape : RR5-2SC PAL (Part No. 8-960-035-61)

8-1. SWITCHING REGULATOR ADJUSTMENT
8-1-1. REG+12V Adjustment

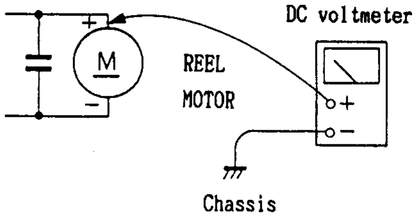
machine conditions for adjustment	specifications	adjustments
• Play back the color bar portions of the alignment tape. RR5-3SA NTSC, or RR5-2SC PAL.	NTSC CN201-1/UR-14 PAL CN201-1/UR-14(E) 12.1 ± 0.02 Vdc	NTSC ⊘RV651/UR-14 PAL ⊘RV651/UR-14(E)

NOTE: If REG 12V Adjustment is attempted, re-alignment of video system and servo system is required.
Do not attempt adjustment of the REG 12V power supply unless the units performance is obviously poor due to incorrect power supply voltage. If adjustments are made to the power supply, re-alignment of the video and servo systems is necessary.

8-2. TAPE SENSOR BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color bars portion of the alignment tape RR5-3SA NTSC, or RR5-2SC PAL. • STOP mode	TP2/SY-174(J-2) 6.0 ± 0.2 Vdc	⊘RV4/SY-174(H-2)

8-3. REEL MOTOR STILL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• PLAY-PAUSE mode without inserting the KCA-60 tape. • Check that the reel motor rotation stops.	Reel motor (+) side/RM-39  + M − REEL MOTOR DC voltmeter + − Chassis DC voltage = 400 ± 20 mV	⊘RV1/SY-174(J-2)

For reel torque adjustment, refer to Section 6.
RV3/SY-174·······································6-3. FWD Torque Adjustment
RV2/SY-174·······································6-4. REV Torque Adjustment

SECTION 9

SERVO SYSTEM ALIGNMENT

〔Equipment Required〕

- Dual-trace Oscilloscope (TECTRONIX 2445 or equivalent)
- Frequency Counter (ADVANTEST TR5821AK or equivalent)
- KSP-60 tape
- Alignment tape : RR5-3SA NTSC (Part No. 8-960-015-04)
- Alignment Tape: RR5-2SC PAL(Part No.8-960-035-61)

In the case of the alignment tape uses RR5-3SA, Select the select switches on Rear Panel to 1 and A.

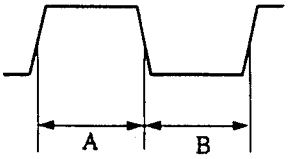
In the case of the alignment tape uses RR5-2SC, Select the select switches on the Rear Panel to 1 and B.

Real Time Counter (min.)	Tape Counter	Video Track	Audio Track
00:00 – 04:00	000 – 100	Monoscope	3 kHz, 0 dB
04:00 – 09:00	100 – 208	Color bars	————
09:00 – 14:00	208 – 300	R-F sweep	————
14:00 – 16:00	300 – 335	Mod. 20T pulse	1 kHz, 0 dB
16:00 – 18:00	335 – 367	M.S. w/burst	10 kHz, – 10 dB
18:00 – 20:00	367 – 398	Pseudo C.B. for DOC adj.	————

9-1. CTL HEAD POSITION ADJUSTMENT

Refer to Section 7-7.

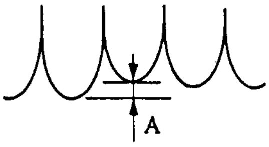
9-2. CAPSTAN FREE SPEED ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color bars portion of the alignment tape RR5-3SA NTSC.	TP3/SV-93H(G-4)  A = B ± 5 % (Read A and B at the center of jitter.)	EIJ ADJ ⊘RV100/SV-93H(G-4) TRIG: INT
Step 2. • Play back the color bars portion of the alignment tape RR5-2SC PAL.		CCIR ADJ ⊘RV105/SV-93H(G-5) TRIG: INT

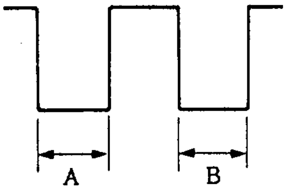
9-3. CAPSTAN SEARCH SPEED ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Short between TP3 and TPE1/SY-174 with a shorting clip. • Play back the color bars portion of the alignment tape RR5-3SA NTSC, or RR5-2SC PAL. • Select into the SEARCH FWD mode. Select the SEARCH FWD-PAUSE mode after pressing the PAUSE button. • Short between TP11 and E1/SV-93G with a shorting clip. • Press the PAUSE button, and then set to the SEARCH FWD mode. • After the adjustment, remove the shorting clip.	TP27/SV-93H(F-4) Frequency counter 60 ± 10 Hz	⊘RV101/SV-93H(F-5)

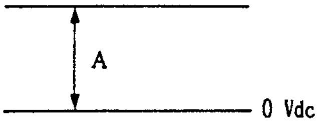
9-4. CAPSTAN STOP SERVO ADJUSTMENT (1)

machine conditions for adjustment	specifications	adjustments
• Play back the color bars portion of the alignment tape RR5-3SA NTSC, or RR5-2SC PAL. SV-93H with a shorting clip. • After the adjustment, remove the shorting clip.	TP21/SV-93H(H-2)  A ≤ 40 mVp-p	⊘RV106/SV-93H(J-3) TRIG: INT

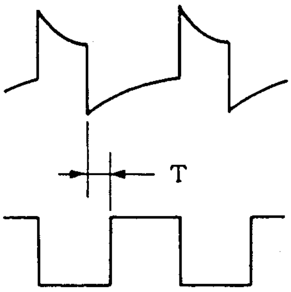
9-5. CAPSTAN FWD/REV DETECTION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color bars portion of the alignment tape RR5-3SA NTSC, or RR5-2SC PAL.	TP25/SV-93H(F-2)  A = B ± 10 % (A+B = 1.1ms)	⊘RV201/SV-93H(J-3) TRIG: INT

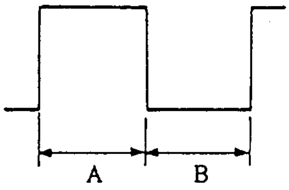
9-6. CAPSTAN STOP SERVO ADJUSTMENT (2)

machine conditions for adjustment	specifications	adjustments
• Play back the color bars portion of the alignment tape RR5-3SA NTSC, or RR5-2SC PAL. • PAUSE mode. • Short between TP6 and TP22/SV-93H with a shorting clip. • After the adjustment, remove the shorting clip.	TP26/SV-93H(E-5)  A = 1.0 ± 0.1 V	⊘RV107/SV-93H(H-4) TRIG: INT

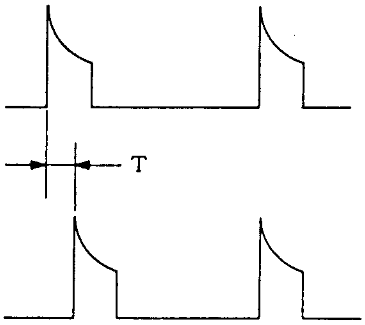
9-7. TRACKING MULTI ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Turn TRACKING control to center click position. • Play back the color bars portion of the alignment tape RR5-3SA NTSC.	TP4/SV-93H(L-4)  TP9/SV-93H(K-4) T = 0 ± 100 μsec (Read T at the center of the jitter.)	⊘RV407/SV-93H(G-6) TRIG: INT(TP9/SV-93H)
Step 2. • Turn the TRACKING control to the center click position. • Play back the color bars portion of the alignment tape RR5-2SC PAL.		⊘RV406/SV-93H(G-6) TRIG: INT(TP9/SV-93H)

9-8. DRUM FREE SPEED ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color bars portion of the alignment tape RR5-3SA NTSC.	TP15/SV-93H(E-7)  A = B ± 5 %	⊘RV401/SV-93H(N-5) TRIG: INT
Step 2. • Play back the color bars portion of the alignment tape RR5-2SC PAL.		⊘RV402/SV-93H(M-3) TRIG: INT

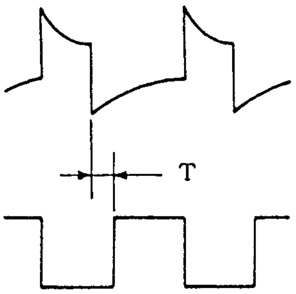
9-9. DRUM AFC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color bars portion of the alignment tape RR5-3SA NTSC. • PB and PAUSE modes	TP8/SV-93H(L-6) PB mode  PAUSE mode T = 0 ± 0.1 μsec	⊘RV2/SV-93H(F-5) TRIG: INT
Step 2. • Play back the color bars portion of the alignment tape RR5-2SC PAL. • PB and PAUSE modes		⊘RV3/SV-93H(F-6) TRIG: INT

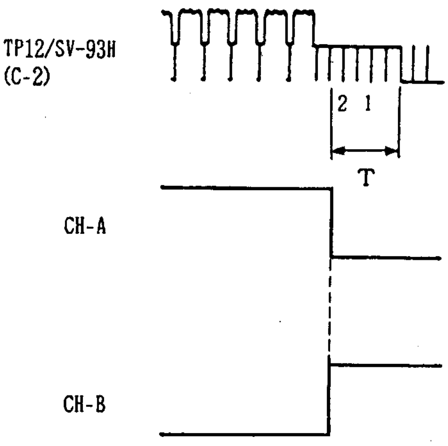
9-10. DRUM AFC TRANSIENT ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color bars portion of the alignment tape RR5-3SA NTSC, or RR5-2SC PAL. • PB and PAUSE modes	TP17/SV-93H(D-6) DC level selecting with into the PAUSE mode = Reference DC level selecting with into the PB mode = Reference ± 0.1 Vdc	⊘RV1/SV-93H(F-6)

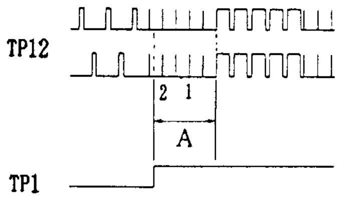
9-11. INSTANT START ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Turn the TRACKING control to the center click position. • Play back the color bars portion of the alignment tape RR5-3SA NTSC, or RR5-2SC PAL. • PAUSE mode • Short between TP11 and E1/ SV-93H with a shorting clip. • After the adjustment, remove the shorting clip.	TP4/SV-93H(L-4)  TP9/SV-93H(L-4) T = 0 ± 1 msec (Read T at the center of the jitter.)	⊘RV102/SV-93H(H-5) TRIG: INT (TP9/SV-93H)

9-12. SWITCHING POSITION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color bars portion of the alignment tape RR5-3SA NTSC. • Short between TP8 and E501/SV-93H with a shorting clip. • Short between TP5 and E501/SV-93H with a shorting clip. • Turn the TRACKING control to the center click position. • After the adjustment, remove the shorting clips.	VIDEO OUT connector  T = 2.25 ± 0.5 H	CH-A: ⊘RV405/SV-93H (J-7) CH-B: ⊘RV403/SV-93H (M-5) TRIG: TP9/SV-93H (TV-V)
Step 2. • Play back the color bar portion of the alignment tape RR5-2SC PAL. • Short between TP8 and E501/SV-93H with a shorting clip. • Short between TP5 and E501/SV-93H with a shorting clip. • Turn the TRACKING CONTROL to the center click position. • After the adjustment, remove the shorting clips.		CH-A: ⊘RV405/SV-93H (J-7) CH-B: ⊘RV404/SV-93H (M-4) TRIG: TP9/SV-93H (TV-V)

9-13. DRUM LOCK PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector: NTSC or PAL colorbars • SYSTEM SELECT SW: 1·A or 1·B • Insert the KSP-60 tape. • Short between TP8(L-6) and E3(N-6)/SV-93H with a shorting clip. • Short between TP5(M-6) and E3(N-6)/SV-93H with a shorting clip. • REC mode • After the adjustment, remove the shorting clips.	TP12/SV-93H(C-6) TP1/SV-93H(N-4)  A = 2.25 ± 0.2 H • Change to the trigger(−) side of oscilloscope, and check to meet the specification.	⊘RV401/SV-93H(N-5) TRIG: TP1/SV-93H(N-4)

SECTION 10

AUDIO SYSTEM ALIGNMENT

〔Equipment Required〕

- Dual Trace Oscilloscope (TECTRONIX 2445 or equivalent)
- Frequency Counter (ADVANTEST TR5821AK or equivalent)
- Audio Oscillator (HP8904 or equivalent)
- AC Volt Meter (HP3400A or equivalent)
- Audio Attenuator
- KSP-60 tape
- Alignment tape : RR5-3SA NTSC (Part No. 8-960-015-04)
- Alignment tape : RR5-2SC PAL (Part No. 8-960-035-61)

In the case of the alignment tape uses RR5-3SA, Select switches on Rear Panel to 1 and A.

In the case of the alignment tape uses RR5-2SC, Select switches on the Rear Panel to 1 and B.

Real Time Counter (min.)	Tape Counter	Video Track	Audio Track
00 : 00 - 04 : 00	000 - 100	Monoscope	3 kHz, 0 dB
04 : 00 - 09 : 00	100 - 208	Color-bar	————
09 : 00 - 14 : 00	208 - 300	R-F sweep	————
14 : 00 - 16 : 00	300 - 335	Mod. 20T pulse	1 kHz, 0 dB
16 : 00 - 18 : 00	335 - 367	M.S. w/burst	10 kHz, −10 dB
18 : 00 - 20 : 00	367 - 398	Pseudo C.B. for DOC adj.	————

10-1. LIMITER LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• MIC IN CH-1, CH-2: 1kHz, −60dBs • Adjust the input level to −30dBs with attenuator. • EE mode • AUTO LIMITER SW: ON (Spec. 1) (DUS-408) • Adjust the input level to −60dBs with attenuator. • AUTO LIMITER SW: OFF (Spec. 2) (DUS-408) • AUTO LIMITER SW: ON (Spec. 3) (DUS-408) • AUTO LIMITER SW: OFF (DUS-408) • Pull out MIC IN connector.	CH-1 LINE OUT connector (terminated by 600Ω) CH-2 LINE OUT connector (terminated by 600Ω) Spec.1 : −2.0 ± 0.3 dBs Spec.2 : −5.0 ± 1.0 dBs(A) Spec.3 : A ± 0.2 dBs	CH-1: ⊘RV1/AU-82B(C-2) CH-2: ⊘RV201/AU-82B(D-2)

10-2. ALIGNMENT TAPE PB FREQUENCY RESPONSE ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>• Play back the audio 1kHz, 3kHz and 10kHz portions of the alignment tape RR5-3SA NTSC or RR5-2SC PAL.</td>
<td>CH-1 LINE OUT connector (terminated by 600Ω)
CH-2 LINE OUT connector (terminated by 600Ω)
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>1 kHz</td><td>REF(AdB)</td></tr>
<tr><td>3 kHz</td><td>A±1.5 dB</td></tr>
<tr><td>10 kHz</td><td>A±1.0 dB</td></tr>
</table>
</td>
<td>CH-1:
• 3kHz Level
⊘RV101/AU-82B(J-4)
• 10kHz Level
⊘RV102/AU-82B(J-2)
CH-2:
• 3kHz Level
⊘RV302/AU-82B(H-4)
• 10kHz Level
⊘RV303/AU-82B(H-1)</td>
</tr>
</table>

10-3. ALIGNMENT TAPE PB LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the audio 1kHz, 0dB portion of the alignment tape RR5-3SA NTSC or RR5-2SC PAL.	CH-1 LINE OUT connector CH-2 LINE OUT connector − 5.0 ± 0.2 dBs	CH-1: ⊘RV103/AU-82B(J-2) CH-2: ⊘RV304/AU-82B(J-1)

10-4. FULL ERASE OSC. FREQUENCY/LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• MIC IN connector: terminated by 600Ω • Insert the KSP-60 tape. • REC mode • Solder C613 on SLIT/AU-82B(A-3, 4) and read the frequency at this time. • Calculate the difference between frequency and specification, Solder C610 to C613. Adjust it to meet the specification.	TP601/AU-82B(A-5) GND: E601/AU-82B(A-5) Frequency: 71 ± 2 kHz Level: 300 ± 10 mVrms	⊘RV604/AU-82B(A-1)

10-5. AUDIO ERASE OSC. FREQUENCY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• MIC IN connector: terminated by 600Ω • Insert the KSP-60 tape. • REC mode	TP602/AU-82B(B-5) E601/AU-82B(A-1) Frequency: 71 ± 0.2 kHz	⊘LV601/AU-82B(B-4)

10-6. REC BIAS VOLTAGE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
· MIC IN connector: terminated by 600Ω · Insert the KSP-60 tape. · REC mode	CH-1: TP101/AU-82B(J-5) GND: TP102/AU-82B(J-5) CH-2: TP301/AU-82B(H-5) GND: TP302/AU-82B(H-5) 10.0 ± 0.5 mVrms	CH-1: ⊘RV601/AU-82B(B-4) CH-2: ⊘RV602/AU-82B(B-4)

10-7. BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
· MIC IN connector: terminated by 600Ω · Insert the KSP-60 tape. · REC mode	CH-1: TP152/AU-82B(J-5) GND: E151/AU-82B(H-6) CH-2: TP352/AU-82B(H-5) GND: E151/AU-82B(H-6) Minimize the level. (less than −35 dBs)	CH-1: ⊘LV151/AU-82B(J-5) CH-2: ⊘LV351/AU-82B(H-5) · Adjust from the component side.

10-8. REC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
· AUDIO LINE IN CH-1, CH-2: 1kHz, −30dB · REC mode · Short between TP603/AU-82B(B-2) and E601/AU-82B(A-5) with a shorting clip. · After the adjustment, remove the shorting clip.	CH-1: TP152/AU-82B(J-5) GND: E151/AU-82B(H-6) CH-2: TP352/AU-82B(H-5) GND: E151/AU-82B(H-6) −17 ± 1 dBs	CH-1: ⊘RV152/AU-82B(K-2) CH-2: ⊘RV352/AU-82B(G-2)

10-9. CH-1 REC EQ ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. ・AUDIO LINE IN CH-1, CH-2: 1kHz, −30dBs ・Turn RV151/AU-82B(K-3) fully clockwise. ・Insert the KSP-60 tape. ・REC mode ・Read the indication of the AC volt meter as A.	TP152/AU-82B(J-5) GND: E151/AU-82B(H-6)	
Step 2. ・Change the OSC frequency to 1kHz→21kHz.	TP152/AU-82B(J-5) Maximize the level. (A + 20 ± 0.5 dB)	⊘LV152/AU-82B(K-3) (Adjust from the component side.) ⊘RV151/AU-82B(K-3)

10-10. CH-2 REC EQ ADJUSTMENT

Conditions for adjustment	Specifications	Adjustments
Step 1. ・AUDIO LINE IN CH-1, CH-2: 1kHz, −30dBs ・Turn RV351/AU-82B(G-2) fully clockwise. ・Insert the KSP-60 tape. ・REC mode ・Read the indication of the AC volt meter as shown at A.	TP352/AU-82B(H-5) GND: E151/AU-82B(H-6)	
Step 2. ・Change the OSC frequency to 1kHz→21kHz.	TP352/AU-82B(H-5) Maximize the level. (A + 20 ± 0.5 dB)	⊘LV352/AU-82B(G-2) (Adjust from the component side.) ⊘RV351/AU-82B(G-2)

10-11. CH-1 OVERALL FREQUENCY RESPONSE ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>· AUDIO LINE IN: 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz, −16dB
· Insert the KSP-60 tape.
· REC mode
· Record each frequency for 15 seconds.
· Rewind and Play back the recorded portion.</td>
<td>CH-1 LINE OUT connector (terminated by 600Ω)
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>40 Hz</td><td>0 ± 3 dB</td></tr>
<tr><td>90 Hz</td><td>0 ± 2 dB</td></tr>
<tr><td>1 kHz</td><td>0 dB (REF)</td></tr>
<tr><td>3 kHz</td><td>−0.3 ± 1 dB</td></tr>
<tr><td>7 kHz</td><td>−0.5 ± 1 dB</td></tr>
<tr><td>10 kHz</td><td>−0.7 ± 1.5 dB</td></tr>
<tr><td>15 kHz</td><td>−1.6 ± 2.0 dB</td></tr>
</table>
</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In the case of 7 through 15 kHz doesn't meet the specifications:
1. CH-1 and CH-2 MIC IN connectors: terminated by 600Ω
2. Connect the AC volt meter to TP101/AU-82B(J-5) (GND: TP102/AU-82B(J-5)).
3. Insert the KSP-60 tape.
4. REC mode
5. Readjust the bias at RV601/AU-82B(B-4).
bias voltage: 8 ~15mVrms
NOTE: When the high frequency is lower than the specification, be lower the bias voltage.
6. Carry out the self-recording/play back and check that the frequency response meets the specification.

In the case of 15kHz doesn't meet the specification:
1. Connect the AC volt meter to TP152/AU-82B(J-2). (GND: E151/AU82B(H-6))
2. LINE IN CH-1 connector: 15kHz, −30dB
3. Insert the KSP-60 tape.
4. REC mode. Read the indication of the AC volt meter as A.
5. Readjust to add or remone to A for which doesn't meet the specification using RV151/AU-82B(K-3).
6. Carry out the self-recording/play back and check that the frequency response meets the specification.</td>
<td></td>
</tr>
</table>

10-12. CH-2 OVERALL FREQUENCY RESPONSE ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>· AUDIO LINE IN: 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz, −16dB
· Insert the KSP-60 tape.
· REC mode.
· Record each frequency for 15 seconds.
· Rewind and Play back the recorded portion.</td>
<td>CH-2 LINE OUT connector (terminated by 600Ω)
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>40 Hz</td><td>0 ± 3 dB</td></tr>
<tr><td>90 Hz</td><td>0 ± 2 dB</td></tr>
<tr><td>1 kHz</td><td>0 dB (REF)</td></tr>
<tr><td>3 kHz</td><td>−0.3 ± 1 dB</td></tr>
<tr><td>7 kHz</td><td>−0.5 ± 1 dB</td></tr>
<tr><td>10 kHz</td><td>−0.7 ± 1.5 dB</td></tr>
<tr><td>15 kHz</td><td>−1.6 ± 2.0 dB</td></tr>
</table>
</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In the case of 7 through 15 kHz doesn't meet the specifications:
1. CH-1 and CH-2 MIC IN connectors: terminated by 600Ω
2. Connect the AC volt meter to TP301/AU-82B(H-5) (GND: TP302/AU-82B(H-5)).
3. Insert the KSP-60 tape.
4. REC mode
5. Readjust the bias at RV602/AU-82B(B-4).
bias voltage: 8 ~15mVrms
NOTE: When the high frequency is lower than the specification, be lower the bias voltage.
6. Carry out the self-recording/play back and check that the frequency response meets the specification.

In the case of 15kHz doesn't meet the specifications:
1. Connect the AC volt meter to TP352/AU-82B(H-2).
2. Insert the KSP-60 tape.
3. REC mode. Read the indication of the AC volt meter as A.
4. Readjust to add or remove to A for which doesn't meet the specification using RV352/AU-82B(G-2).
5. Carry out the self-recording/play back and check that the frequency response meets the specification.</td>
<td></td>
</tr>
</table>

10-13. REC/PB LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
· AUDIO LINE IN CH-1, CH-2: 1kHz, −10dB terminated by 600Ω · Insert the KSP-60 tape. · REC mode	TP101/AU-82B(J-5) GND: TP102/AU-82B(J-5) 9.0 ± 0.5 mVrms	⊘RV603/AU-82B(A-1)
Step 1. · Rewind and play back the recorded portion. · Read the demonstrative value of AC volt meter and compare with the specification. · When it do not to meet the specification, carry out Step 2.	CH-1 LINE OUT connector (terminated by 600Ω) CH-2 LINE OUT connector (terminated by 600Ω) − 5.0 ± 0.3 dBs	CH-1: ⊘RV152/AU-82B(K-2) CH-2: ⊘RV352/AU-82B(G-2)
Step 2. · REC mode · Read the level at TP152 and adjust for the difference with the specification of Step 1 using RV152. · Adjust using RV352 with the same way.	TP152/AU-82B(J-5) GND: E151/AU-82B(H-6) TP352/AU-82B(H-5) GND: E151/AU-82B(H-6)	

SECTION 11
VIDEO SYSTEM ALIGNMENT

Section 9 SERVO SYSTEM ALIGNMENT should be completed before initiating this Alignment.

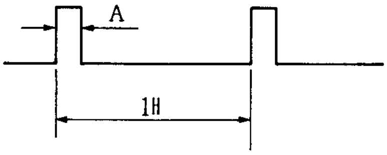
〔Equipment Required〕
- Dual trace oscilloscope (TECTRONIX 2445 or equivalent)
- Frequency counter (ADVANTEST TR5821AK or equivalent)
- NTSC video signal generator (TECTRONIX TSG-100/103 or equivalent)
- PAL video signal generator (TECTRONIX TSG-371 or equivalent)
- Spectrum analyzer
- KSP-60 tape
- Alignment tape : RR5-3SA NTSC (Part No. 8-960-015-04)

Real Time Counter (min.)	Tape Counter	Video Track	Audio Track
00:00-04:00	000-100	Monoscope	3kHz, 0dB
04:00-09:00	100-208	Color-bar	————
09:00-14:00	208-300	R-F sweep	————
14:00-16:00	300-335	Mod. 20T pulse	1kHz, 0dB
16:00-18:00	335-367	M. S. w/burst	10kHz, -10dB
18:00-20:00	367-398	Pseudo C. B. for DOC adj.	————

- Alignment tape ; RR5-2SC PAL (Part No. 8-960-035-61)

Real Time Counter (min.)	Tape Counter	Video Track	Audio Track
00:00-04:00	000-100	Monoscope	3kHz, 0dB
04:00-09:00	100-208	Color-bar	————
09:00-14:00	208-300	R-F sweep	————
14:00-16:00	300-335	Mod. 20T pulse	1kHz, 0dB
16:00-18:00	335-367	M. S. w/burst	10kHz, -10dB
18:00-20:00	367-398	Pseudo C. B. for DOC adj.	————

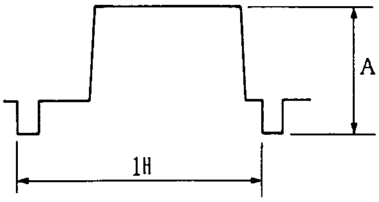
11-1. Pedestal Clamp Pulse Width Adjustment

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A (525/60) • VIDEO IN : 100% FLAT FIELD (NTSC, BURST OFF) • STOP mode	TP5/VO-39 (B-1)  A= 2.0±0.1μs	⊘RV1/VO-39 (A-1) TRIG : INT

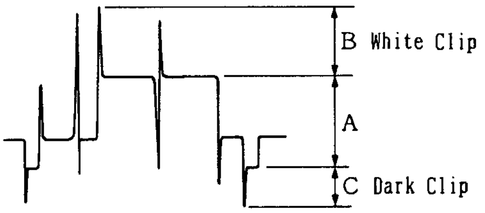
11-2. Sync Tip Carrier Frequency Adjustment

machine conditions for adjustment	specifications	adjustments
• VIDEO IN : No signal • STOP mode	TP10/VO-39 (D-4) $6.0\pm^{0}_{0.05}$ MHz	⊘RV3/VO-39 (A-5)

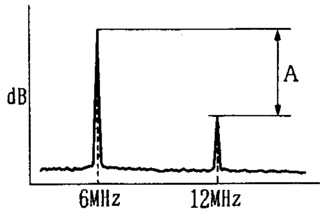
11-3. FM Deviation Adjustment

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A (525/60) • VIDEO IN : 100% FLAT FIELD (NTSC, BURST OFF) • STOP mode	TP7/VO-39 (B-3)  A=0.92±0.01Vp-p	⊘RV2/VO-39 (B-3) TRIG : INT

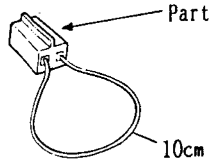
11-4. White/Dark Clip Adjustment

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A (525/60) • VIDEO IN : PULSE&BAR (NTSC, BURST OFF) • STOP mode	TP8/VO-39 (B-5)  A = 100% B (White Clip) = 90 ± 5% C (Dark Clip) = 60 ± 5%	B (White Clip) ⊘RV4/VO-39 (A-5) C (Dark Clip) ⊘RV5/VO-39 (B-5) TRIG : INT

11-5. REC HF Balance Adjustment

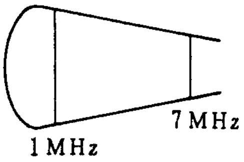
machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A • VIDEO IN : No signal • STOP mode • Connect the output of oscilloscope to the input of spectrum analyzer.	TP10/VO-39 (D-4)  Minimize secondaly discortion around 12MHz. A ≧ 42dB	⊘RV6/VO-39 (D-4)

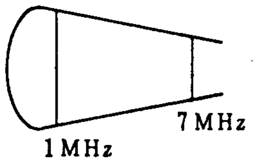
11-6. REC Current Frequency Responce Adjustment



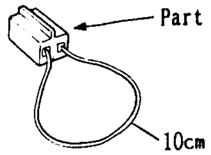
Part No. : 1-509-983-00
HOUSING, IL CONNECTOR 2P
NOTE : Cut projection
using a cutter.

<Junction Connector>

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>• SYSTEM SELECT SW : 1•A(525/60)
• Remove the connector sockets of CP1/RP-36A(A-3) and CP2/RP-36A (A-3).
• Connect CP1/RP-36A(A-3) to CP2/RP-36A(A-3) using junction connector.</td><td></td><td></td></tr>
<tr><td>Step 1.
• Short between TP3/RP-36A(A-7) and E1/RP-36A(A-7) using a shorting clip.
• Connect sweep signal to TP4/RP-36A (A-6) and E1/RP-36A(A-7).
• Carry out short recording using a KSP-60 tape.
• Connect current prove to CP2/RP-36A(A-3) connected the junction connector, and adjust SG so that 1MHz level can be 60mAp-p.
• After the adjustment remove the shorting clip.</td><td> <table><tr><th>Frequency</th><th>Level</th></tr><tr><td>1MHz</td><td>100%</td></tr><tr><td>7MHz</td><td>60± 5%</td></tr></table>Adjust RV3 so that 7MHz level can be meet the specification.
Be careful to change 1MHz level when adjusting RV3.</td><td>⊘RV3/RP-36A(A-4)</td></tr>
</table>

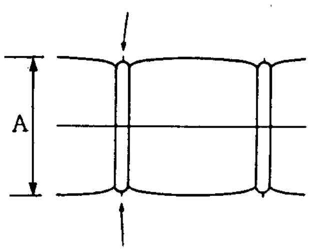
<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>Step 2
• Short TP3/RP-36A(A-7) to E1/RP-36A (A-7) using a shorting clip.
• Carry out the short recording using a KSP-60 tape.
• Connent current prove to CP1/RP-36A(A-3)connected the junction connector, and adjust SG so that 1MHz level can be 60mAp-p.
• After the adjustment remove the shorting clip and junction connector. Install the connector sockets.</td><td>
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>1MHz</td><td>100%</td></tr>
<tr><td>7MHz</td><td>60± 5 %</td></tr>
</table></td><td>⊘RV5/RP-36A(B-4)
TRIG : EXT SWEEP TRIG</td></tr>
</table>

11-7. REC Current Level Adjustment



Part No. : 1-509-983-00
HOUSING, IL CONNECTOR 2P
NOTE : Cut projection
using a cutter.

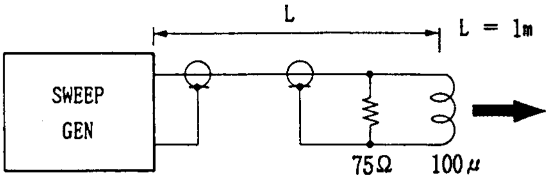
<Junction Connector>

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A(525/60) • VIDEO IN : PULSE & BAR (NTSC, BURST OFF) • Remove the connector socket of CP2/RP-36A(A-3). • Connect the junction connector to CP2/RP-36A(A-3) and connect the current prove to it. • Remove the connector socket of CP1/RP-36A(A-3). • Carry out the short recording using a KSP-60 tape. • Connect the junction connector to CP1/RP-36A(A-3) and connect the current prove to it. • Carry out the short recording using a KSP-60 tape. • After adjustment remove the junction connectors. Install the connector sockets.	 Carry out the adjustment with watching. A = 50±5mA.	⊘RV2/RP-36A(A-8)

11-8. Y PB RF ADJUSTMENT

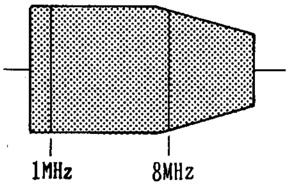
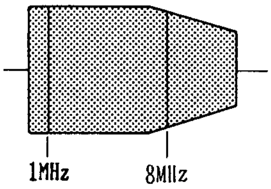
11-8-1. PB Pre-Amplifier Adjustment

Stop head drum rotation without a cassette tape, and L-couple sweep signal and video head using an inductor (amount 100µH).

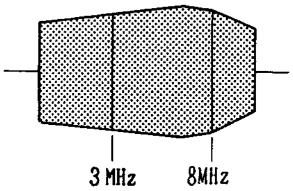


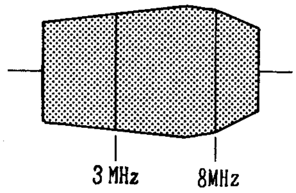
Bring an inductor close to the video head

Sweep signal band width : 1 to 10MHz

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>Step 1. CH-A frequency adjustment
・Short between TP12/VO-39(F-2) and E3/VO-39(F-2) using a shorting clip.
・POWER ON.
・Couple a sweep signal using the video head (CH-A).
・Adjust coupling so that the amplitude is maximized.
・After the adjustment remove the shorting clip.</td>
<td>TP7/RP-36A(A-1)

<table><tr><th>1MHz</th><th>8MHz</th></tr><tr><td>100%
(REF)</td><td>95± 5%</td></tr></table></td>
<td>⊘RV4/RP-36A(A-2)
TRIG : TRIG OUT of SWEEP GEN</td>
</tr>
<tr>
<td>Step 2. CH-B frequency adjustment
・Short between TP12/VO-39(F-2) and E3/VO-39(G-4) using a shorting clip.
・POWER ON.
・Couple a sweep signal using the video head (CH-B).
・Adjust coupling so that the amplitude is maximized.
・After the adjustment remove the shorting clip.</td>
<td>TP10/RP-36A(B-2)

<table><tr><th>1MHz</th><th>8MHz</th></tr><tr><td>100%
(REF)</td><td>95± 5%</td></tr></table></td>
<td>⊘RV6/RP-36A(B-2)
TRIG : TRIG OUT of SWEEP GEN</td>
</tr>
</table>

11-8-2. PB RF Frequency Response Adjustment (Middle)

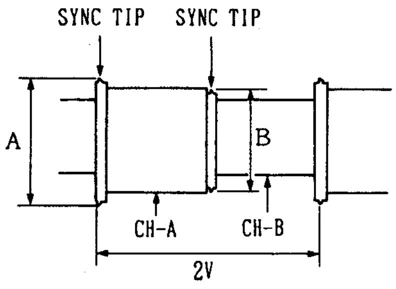
<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>Step 1.
• Short between TP12/VO-39(F-2) and E3/VO-39(G-4) using a shorting clip.
(In the case of VO-39 Board's Part No. is 1-640-630-11 disconnect CN102/VO-39(L-8).)
• Short between TP202/VO-39(B-10)and E201/VO-39(A-10) using a shorting clip.
• POWER ON.
• Adjust the output of sweep signal so that signal level is 0.5 Vp-p.
• Couple a sweep signal using the video head (CH-A).
• Adjust coupling so that the amplitude is maximized.
• After the adjustment remove the shorting clips.</td><td>CH-A : TP207/VO-39(B-9)


<table><tr><th>3MHz</th><th>8MHz</th></tr><tr><td>100%
(REF)</td><td>115±10%</td></tr></table></td><td>CH-A
⊘RV202/VO-39A(A-10)</td></tr>
<tr><td>Step 2.
• Short between TP12/VO-39(F-2) and E3/VO-39(G-4) using a shorting clip.
(In the case of VO-39 Board's Part No. is 1-640-630-11 disconnect CN102/VO-39(L-8).)
• Short between TP202/VO-39(B-10) and TP205/VO-39(A-9) using a shorting clip.
• POWER ON.
• Couple a sweep signal with the video head (CH-B).
• Adjust coupling so that the amplitude is maximized.
• After the adjustment remove the shorting clips.</td><td>CH-B : TP207/VO-39(B-9)


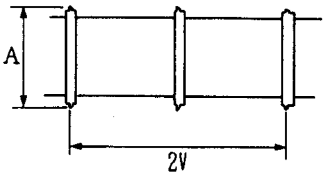
<table><tr><th>3MHz</th><th>8MHz</th></tr><tr><td>100%
(REF)</td><td>115±10%</td></tr></table></td><td>CH-B
⊘RV201/VO-39(A-10)

TRIG : TRIG OUT of SWEEP GEN</td></tr>
</table>

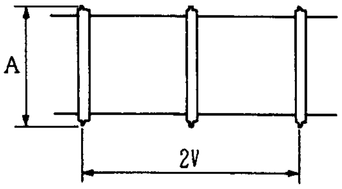
11-9. CCIR RF Level/Channel Balance Adjustment

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•B • Carry out the self recording/play back of 100% FLAT FIELD (PAL, BURST OFF). • When re-adjusting the CCIR RF Level, re-adjust EIA RF Level.	TP207/VO-39 (B-9)  Level : A = B = 400 ± 30mV Balance : A = B	Level ⊘RV204/VO-39 (A-9) Balance ⊘RV203/VO-39 (B-9) TRIG : TP201/VO-39 (C-10)

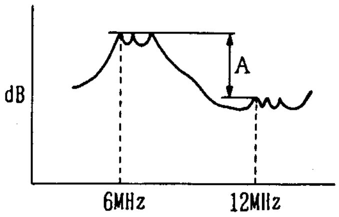
11-10. CCIR HF Level Adjustment

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•B • Carry out the play back of 100% FLAT FIELD (PAL, BURST OFF).	TP209/VO-39 (B-8)  A = 200 ± 15mV	⊘RV210/VO-39 (B-8) TRIG : TP201/VO-39 (C-10)

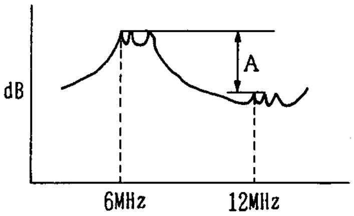
11-11. EIA RF Level Adjustment

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A • Carry out the self recording/play back of 100% FLAT FIELD (NTSC, BURST OFF).	TP209/VO-39 (B-8)  A = 400 ± 30mV	⊘RV209/VO-39 (A-8) TRIG : TP201/VO-39 (C-10)

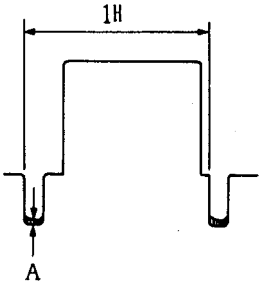
11-12. PB HF Balance Adjustment

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A • Carry out the play back of 100% FLAT FIELD (NTSC, BURST OFF). • Connect the output of oscilloscope to the input of spectrum analyzer.	TP210/VO-39(A-6)  Minimize secondaly discortion around 12MHz. A≧42dB	⊘RV206/VO-39(B-8)

11-13. Limitter Balance Adjustment

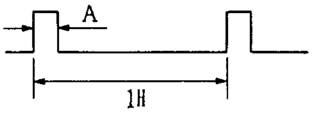
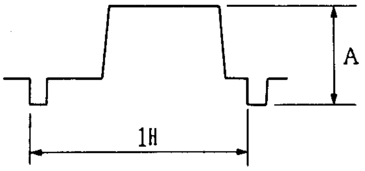
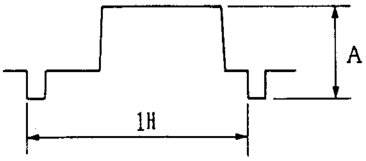
machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A • Carry out the play back of 100% FLAT FIELD (NTSC, BURST OFF). • Connect the output of oscilloscope to the input of spectrum analyzer.	TP212/VO-39(C-6)  Minimize secondaly discortion around 12MHz. A≧45dB	⊘RV207/VO-39(B-7)

11-14. Demodulator Balance Adjustment

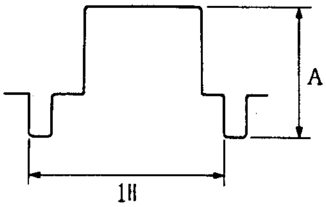
machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A • Play back the Mod. 20T Pulse portion of alignment tape RR5-3SA NTSC.	TP213/VO-39(C-7)  Minimize secondaly discortion	⊘RV208/VO-39(C-6) TRIG : INT

11-15. VIDEO OUT Output Level Adjustment

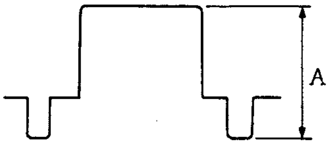
This adjustment is for VO-39 Board's Part No. 1-640-630-11.

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A(525/60) • VIDEO IN : 100% FLAT FIELD (NTSC, BURST OFF) • STOP mode • VIDEO OUT 1 : 75Ω connect		
Step 1	TP4/VL-5(D-4)  A=2.0±0.1μs	⊘RV1/VL-5(D-2)
Step 2	TP2/VL-5(F-4)  A=0.98±0.01Vp-p	⊘RV2/VL-5(H-1)
Step 3	TP227/VO-39(G-9)  A=1.00±0.01Vp-p	⊘RV220/VO-39(G-8)

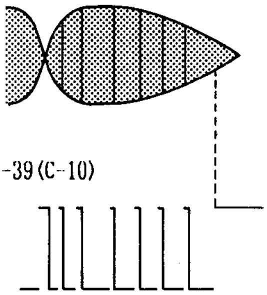
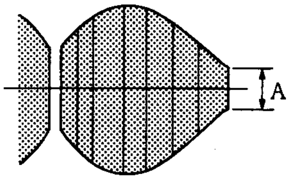
This adjustment is for VO-39 Board's Part No. 1-640-630-12.

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A(525/60) • VIDEO IN : 100% FLAT FIELD (NTSC, BURST OFF) • STOP mode • VIDEO OUT 1 : 75Ω connect	TP227/VO-39(G-9)  A = 1 ±0.01Vp-p	⊘RV1/VL-5 TRIG : INT

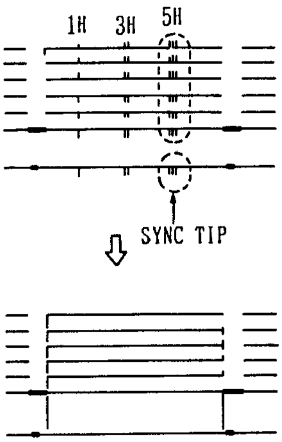
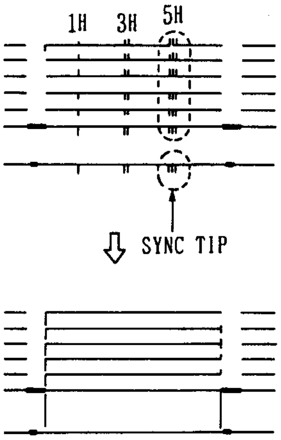
11-16. PB Output Level Adjustment

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A(525/60) • VIDEO OUT 1 : 75Ω connect • Play back the Mod. 20T Pulse portion of the alignment tape RR5-2SA NTSC.	TP227/VO-39(G-9)  A = 1.03±0.05Vp-p	⊘RV219/VO-39(E-9)

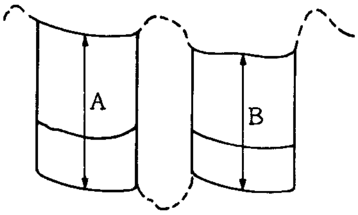
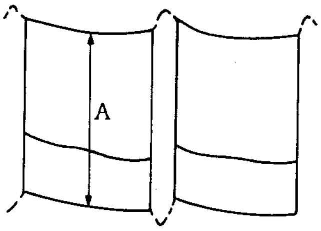
11-17. Dropout Compensation Sensitivity Adjustment

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 1•A(525/60) • Short between TP8/SV-93H(L-6) and E3/SV-93H(N-6) with a shorting clip. • Play back the RF sweep signal portion of the alignment tape RR5-3SA NTSC. • Be situated tracking volume at the center FIXED position. • After the adjustment remove the shorting clip.	CH-1 : TP209/VO-39(B-9)  CH-2 : TP208/VO-39(C-10) Oscilloscope : ADD mode  A= 50 ± 5 mV	⊘RV205/VO-39(D-9) TRIG : TP201/VO-39(C-10)

11-18. Dropout Compensation Level Adjustment

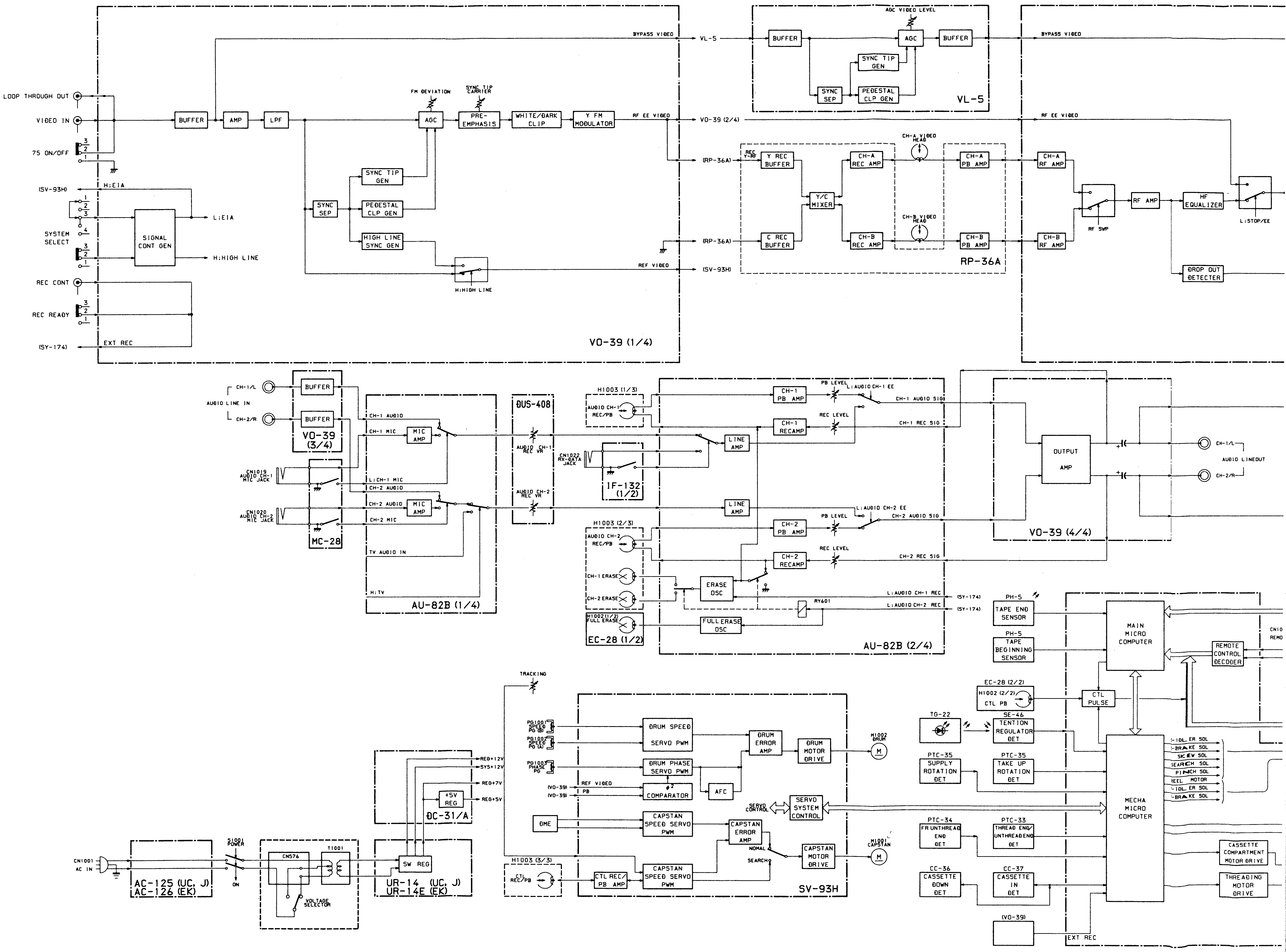
machine conditions for adjustment	specifications	adjustments
Step 1. • SYSTEM SELECT SW : 1•A(525/60) • Play back the quasi-color bars portion for DOC Adjustment of the alignment tape RR5-3SA NTSC.	TP225/VO-39(H-10)  Adjust so that the waveform is flat as possible.	DC Balance ⊘RV217/VO-39(F-7) Level ⊘RV215/VO-39(E-7) TRIG : TP201/VO-39(C-10)
Step 2. • SYSTEM SELECT SW : 1•B(625/50) • Play back the quasi-color bars portion for DOC Adjustment of the alignment tape RR5-2SC PAL.	TP225/VO-39(H-10)  Adjust so that the waveform is flat as possible.	DC Balance ⊘RV214/VO-39(F-6) Level ⊘RV213/VO-39(H-7) TRIG : TP201/VO-39(C-10)

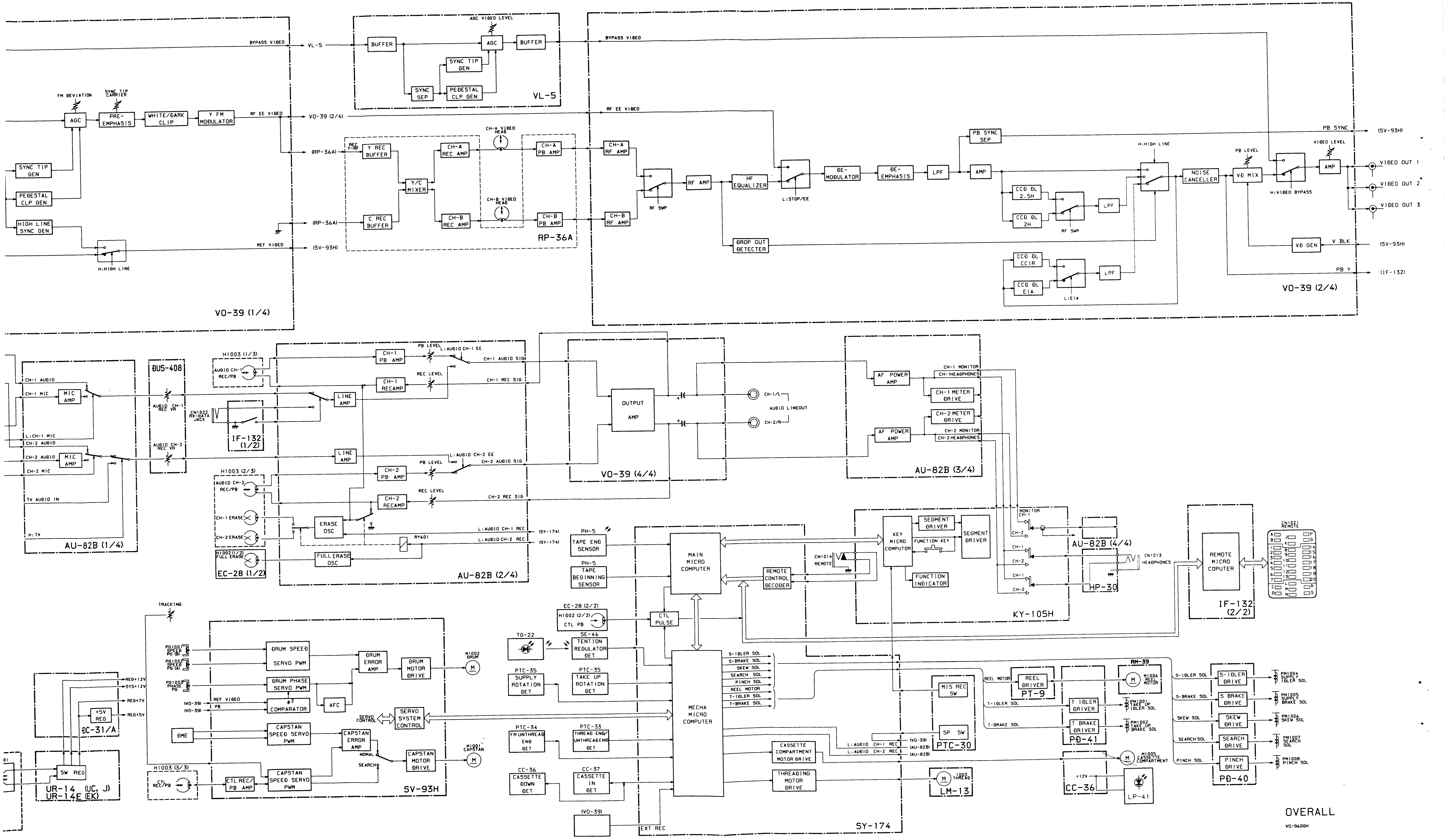
11-19. 1000 Lines Search/Still Level Adjustment

machine conditions for adjustment	specifications	adjustments
• SYSTEM SELECT SW : 2・A(1049/60) • Play back the monoscope signal portion of the alignment tape RR5-3SA NTSC, and press PAUSE button.		
Step 1.	TP224/VO-39(H-10)  Minimize the level difference between A and B. $\frac{A-B}{A} \leqq 5\%$	⊘RV216/VO-39(H-9) TRIG : TP201/VO-39(C-10)
Step 2.	TP224/VO-39(H-10)  Adjust level A to meet the specification. $A=800\pm50\text{mV}$	⊘RV221/VO-39(H-10) TRIG : TP201/VO-39(C-10)

SECTION 12
BLOCK DIAGRAM

OVERALL
BLOCK DIAGRAM

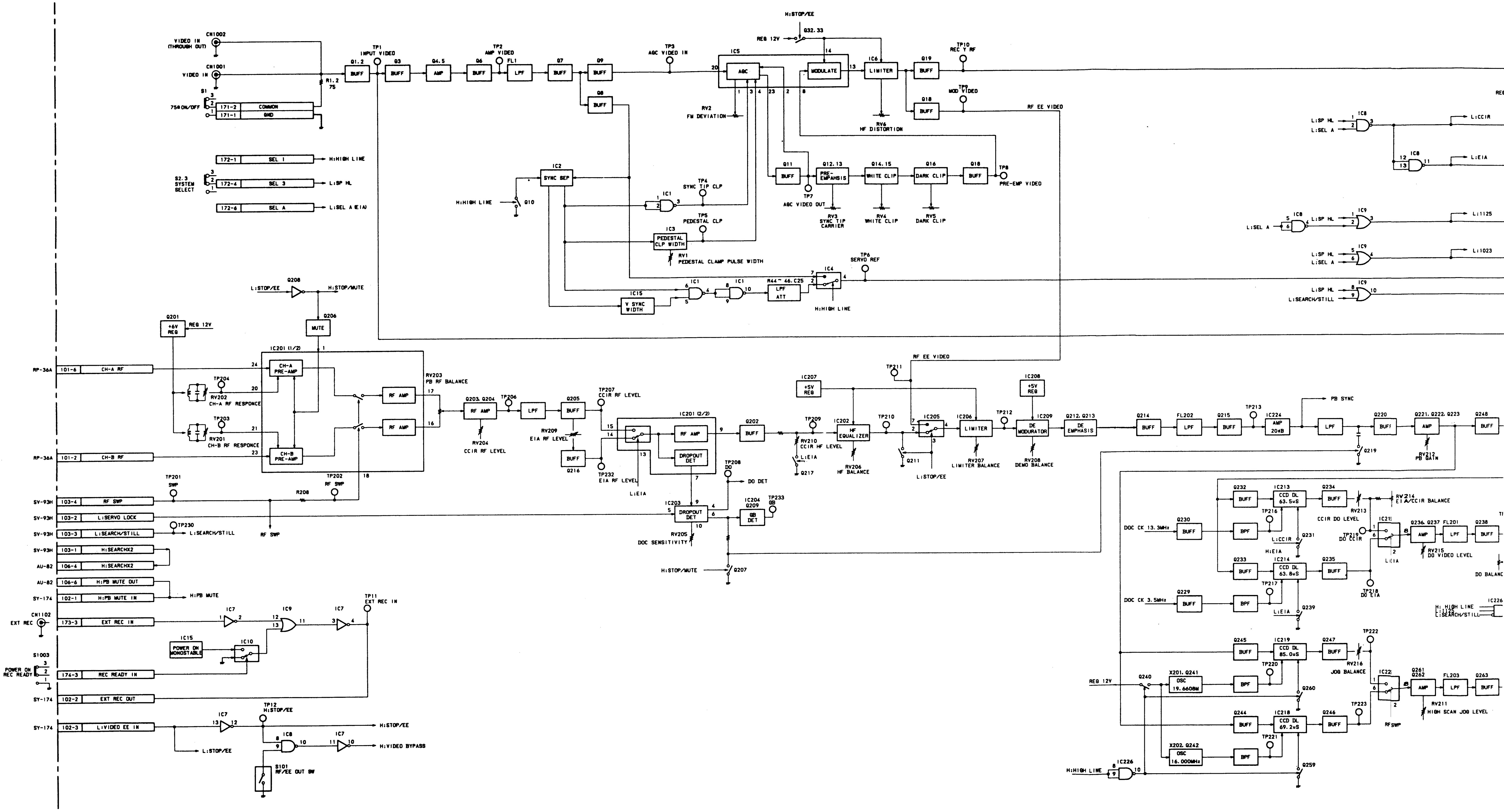

LOOP THROUGH OUT
VIDEO IN
75 ON/OFF
(SV-93H)
H:EIA
SYSTEM SELECT
SIGNAL CONT GEN
L:EIA
H:HIGH LINE
REC CONT
REC READY
(SY-174)
EXT REC
BUFFER
AMP
LPF
FM DEVIATION
AGC
SYNC TIP CARRIER
PRE-EMPHASIS
WHITE/DARK CLIP
Y FM MODULATOR
SYNC TIP GEN
PEDESTAL CLP GEN
HIGH LINE SYNC GEN
SYNC SEP
BYPASS VIDEO
RF EE VIDEO
REF VIDEO
VO-39 (1/4)
VL-5
VO-39 (2/4)
(RP-36A)
AGC VIDEO LEVEL
SYNC SEP
PEDESTAL CLP GEN
Y REC BUFFER
C REC BUFFER
Y/C MIXER
CH-A REC AMP
CH-B REC AMP
CH-A VIDEO HEAD
CH-B VIDEO HEAD
CH-A PB AMP
CH-B PB AMP
RP-36A
CH-A RF AMP
CH-B RF AMP
RF SWP
RF AMP
HF EQUALIZER
L:STOP/EE
DROP OUT DETECTER
AUDIO LINE IN
CH-1/L
CH-2/R
VO-39 (3/4)
CN1019 AUDIO CH-1 MIC JACK
CN1020 AUDIO CH-2 MIC JACK
MC-28
CH-1 AUDIO
CH-1 MIC
MIC AMP
L:CH-1 MIC
CH-2 AUDIO
CH-2 MIC
TV AUDIO IN
H:TV
AU-82B (1/4)
DUS-408
AUDIO CH-1 REC VR
AUDIO CH-2 REC VR
CN1022 RX-DATA JACK
IF-132 (1/2)
H1003 (1/3)
AUDIO CH-1 REC/PB
H1003 (2/3)
AUDIO CH-2 REC/PB
CH-1 ERASE
CH-2 ERASE
H1002(1/2) FULL ERASE
EC-28 (1/2)
CH-1 PB AMP
CH-1 RECAMP
PB LEVEL
REC LEVEL
L:AUDIO CH-1 EE
CH-1 AUDIO SIG
CH-1 REC SIG
LINE AMP
L:AUDIO CH-2 EE
CH-2 PB AMP
CH-2 RECAMP
CH-2 AUDIO SIG
CH-2 REC SIG
ERASE OSC
FULL ERASE OSC
RY601
L:AUDIO CH-1 REC
L:AUDIO CH-2 REC
AU-82B (2/4)
OUTPUT AMP
AUDIO LINEOUT
VO-39 (4/4)
PH-5
TAPE END SENSOR
TAPE BEGINNING SENSOR
MAIN MICRO COMPUTER
REMOTE CONTROL DECODER
EC-28 (2/2)
H1002 (2/2) CTL PB
CTL PULSE
TG-22
SE-46
TENTION REGULATOR DET
PTC-35
SUPPLY ROTATION DET
TAKE UP ROTATION DET
MECHA MICRO COMPUTER
PTC-34
FR UNTHREAD END DET
PTC-33
THREAD END/UNTHREAD END DET
CC-36
CASSETTE DOWN DET
CC-37
CASSETTE IN DET
(VO-39)
EXT REC
CASSETTE COMPARTMENT MOTOR DRIVE
THREADING MOTOR DRIVE
IDLER SOL
BRAKE SOL
SKEW SOL
SEARCH SOL
PINCH SOL
REEL MOTOR
TRACKING
PG1001 SPEED PG (B)
PG1002 SPEED PG (A)
PG1003 PHASE PG
DRUM SPEED SERVO PWM
DRUM PHASE SERVO PWM
DRUM ERROR AMP
DRUM MOTOR DRIVE
M1002 DRUM
REF VIDEO
PB
COMPARATOR
AFC
SERVO CONTROL
SERVO SYSTEM CONTROL
DME
CAPSTAN SPEED SERVO PWM
CAPSTAN ERROR AMP
NOMAL
SEARCH
CAPSTAN MOTOR DRIVE
M1001 CAPSTAN
H1003 (3/3)
CTL REC/PB
CTL REC/PB AMP
SV-93H
REG+12V
SYS+12V
REG+7V
REG+5V
+5V REG
DC-31/A
SW REG
UR-14 (UC, J)
UR-14E (EK)
CN1001 AC IN
AC-125 (UC, J)
AC-126 (EK)
S1001 POWER
ON
CN576
T1001
VOLTAGE SELECTOR

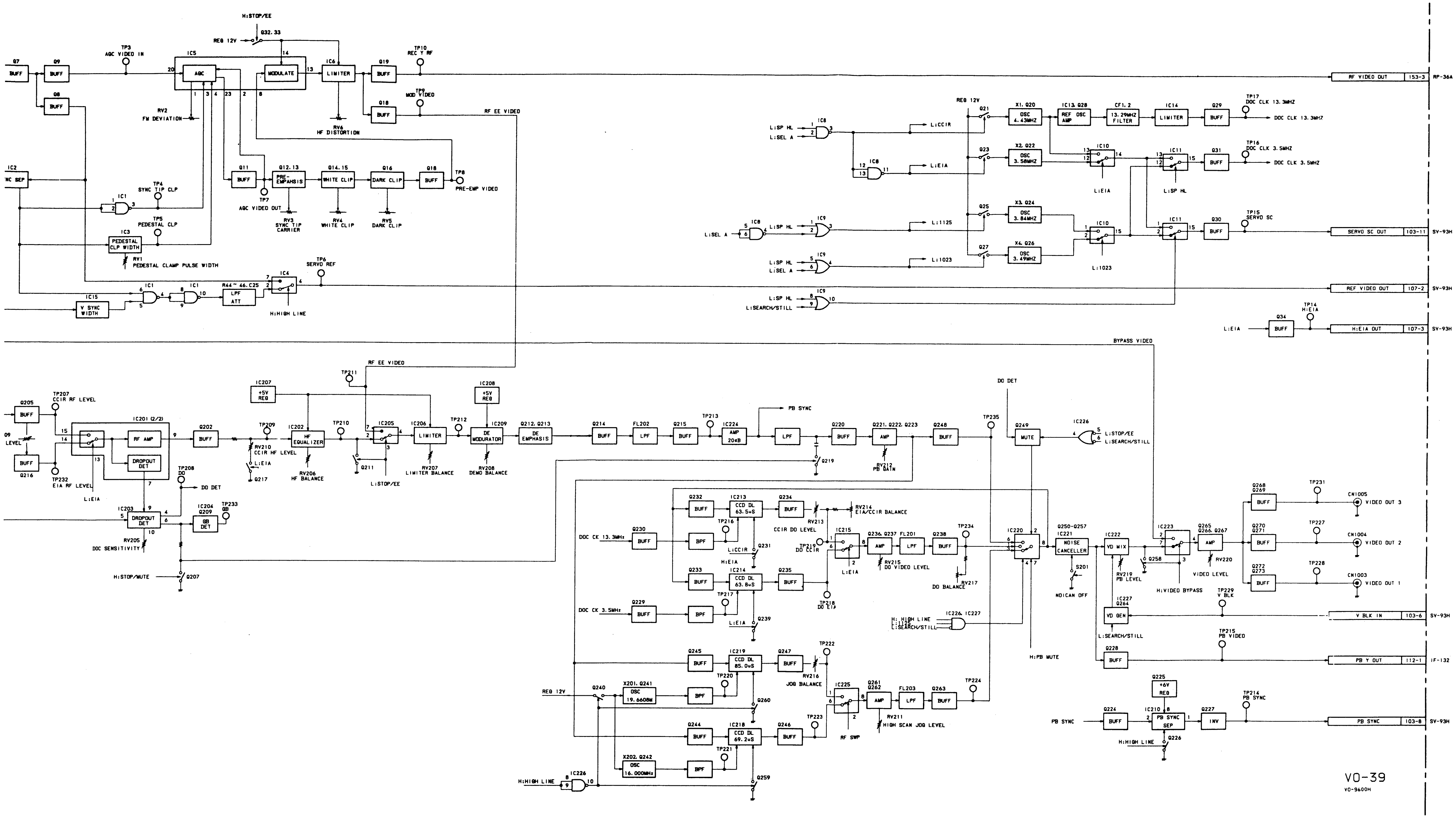

BYPASS VIDEO
VL-5
BUFFER
AGC VIDEO LEVEL
AGC
BUFFER
SYNC TIP GEN
SYNC SEP
PEDESTAL CLP GEN
VL-5
FM DEVIATION
SYNC TIP CARRIER
AGC
PRE-EMPHASIS
WHITE/DARK CLIP
Y FM MODULATOR
RF EE VIDEO
VO-39 (2/4)
SYNC TIP GEN
PEDESTAL CLP GEN
HIGH LINE SYNC GEN
H:HIGH LINE
REF VIDEO
(SV-93H)
(RP-36A)
REC Y-RF
Y REC BUFFER
C REC BUFFER
Y/C MIXER
CH-A REC AMP
CH-B REC AMP
CH-A VIDEO HEAD
CH-B VIDEO HEAD
CH-A PB AMP
CH-B PB AMP
RP-36A
VO-39 (1/4)
BYPASS VIDEO
RF EE VIDEO
CH-A RF AMP
CH-B RF AMP
RF SWP
RF AMP
HF EQUALIZER
L:STOP/EE
DE-MODULATOR
DE-EMPHASIS
LPF
PB SYNC SEP
PB SYNC
(SV-93H)
AMP
CCD DL 2.5H
CCD DL 2H
RF SWP
LPF
CCD DL CCIR
CCD DL EIA
L:EIA
LPF
DROP OUT DETECTER
H:HIGH LINE
NOISE CANCELLER
PB LEVEL
VD MIX
H:VIDEO BYPASS
VIDEO LEVEL
AMP
VIDEO OUT 1
VIDEO OUT 2
VIDEO OUT 3
VD GEN
V BLK
(SV-93H)
PB Y
(IF-132)
VO-39 (2/4)
CH-1 AUDIO
CH-1 MIC
MIC AMP
L:CH-1 MIC
CH-2 AUDIO
MIC AMP
CH-2 MIC
TV AUDIO IN
H:TV
AU-82B (1/4)
DUS-408
AUDIO CH-1 REC VR
AUDIO CH-2 REC VR
H1003 (1/3)
AUDIO CH-1 REC/PB
CN1022 RX-DATA JACK
IF-132 (1/2)
H1003 (2/3)
AUDIO CH-2 REC/PB
CH-1 ERASE
CH-2 ERASE
H1002(1/2) FULL ERASE
EC-28 (1/2)
CH-1 PB AMP
PB LEVEL
L:AUDIO CH-1 EE
CH-1 AUDIO SIG
CH-1 RECAMP
REC LEVEL
CH-1 REC SIG
LINE AMP
LINE AMP
L:AUDIO CH-2 EE
PB LEVEL
CH-2 PB AMP
CH-2 AUDIO SIG
CH-2 RECAMP
REC LEVEL
CH-2 REC SIG
ERASE OSC
RY601
L:AUDIO CH-1 REC
L:AUDIO CH-2 REC
(SY-174)
(SY-174)
FULL ERASE OSC
AU-82B (2/4)
OUTPUT AMP
CH-1/L
AUDIO LINEOUT
CH-2/R
VO-39 (4/4)
AF POWER AMP
CH-1 MONITOR
CH-1 HEADPHONES
CH-1 METER DRIVE
CH-2 METER DRIVE
AF POWER AMP
CH-2 MONITOR
CH-2 HEADPHONES
AU-82B (3/4)
PH-5
TAPE END SENSOR
PH-5
TAPE BEGINNING SENSOR
MAIN MICRO COMPUTER
REMOTE CONTROL DECODER
CN1014 REMOTE
KEY MICRO COMPUTOR
SEGMENT DRIVER
SEGMENT DRIVER
FUNCTION KEY
FUNCTION INDICATOR
KY-105H
MONITOR CH-1
CH-2
CH-1
CH-2
CH-1
CH-2
AU-82B (4/4)
CN1013 HEADPHONES
HP-30
REMOTE MICRO COPUTER
IF-132 (2/2)
CN1021 REMOTE
TRACKING
PG1001 SPEED PG (B)
PG1002 SPEED PG (A)
PG1003 PHASE PG
DRUM SPEED
SERVO PWM
DRUM ERROR AMP
DRUM MOTOR DRIVE
M1002 DRUM
DRUM PHASE SERVO PWM
REF VIDEO
(VO-39)
PB
(VO-39)
COMPARATOR
AFC
SERVO CONTROL
SERVO SYSTEM CONTROL
DME
CAPSTAN SPEED SERVO PWM
CAPSTAN ERROR AMP
NOMAL
SEARCH
CAPSTAN MOTOR DRIVE
M1001 CAPSTAN
H1003 (3/3)
CTL REC/PB
CTL REC/PB AMP
CAPSTAN SPEED SERVO PWM
SV-93H
REG+12V
SYS+12V
REG+7V
REG+5V
+5V REG
DC-31/A
SW REG
UR-14 (UC, J)
UR-14E (EK)
EC-28 (2/2)
H1002 (2/2)
CTL PB
CTL PULSE
TG-22
SE-46
TENTION REGULATOR DET
PTC-35
SUPPLY ROTATION DET
PTC-35
TAKE UP ROTATION DET
PTC-34
FR UNTHREAD END DET
PTC-33
THREAD END/UNTHREAD END DET
CC-36
CASSETTE DOWN DET
CC-37
CASSETTE IN DET
(VO-39)
EXT REC
MECHA MICRO COMPUTER
S-IDLER SOL
S-BRAKE SOL
SKEW SOL
SEARCH SOL
PINCH SOL
REEL MOTOR
T-IDLER SOL
T-BRAKE SOL
CASSETTE COMPARTMENT MOTOR DRIVE
THREADING MOTOR DRIVE
SY-174
L:AUDIO CH-1 REC
L:AUDIO CH-2 REC
(VO-39)
(AU-82B)
(AU-82B)
MIS REC SW
SP SW
PTC-30
M1003 THREAD
LM-13
REEL MOTOR
REEL DRIVER
PT-9
RM-39
M1006 REEL MOTOR
T-IDLER SOL
T IDLER DRIVER
T-BRAKE SOL
T BRAKE DRIVER
PD-41
PM1001 TAKE UP IDLER SOL
PM1002 TAKE UP BRAKE SOL
M1005 CASSETTE COMPARTMENT
+12V
CC-36
LP-41
S-IDLER SOL
S-IDLER DRIVE
S-BRAKE SOL
S BRAKE DRIVE
SKEW SOL
SKEW DRIVE
SEARCH SOL
SEARCH DRIVE
PINCH SOL
PINCH DRIVE
PD-40
PM1004 SUPPLY IDLER SOL
PM1005 SUPPLY BRAKE SOL
PM1006 SKEW SOL
PM1007 SEARCH SOL
PM1008 PINCH SOL

OVERALL

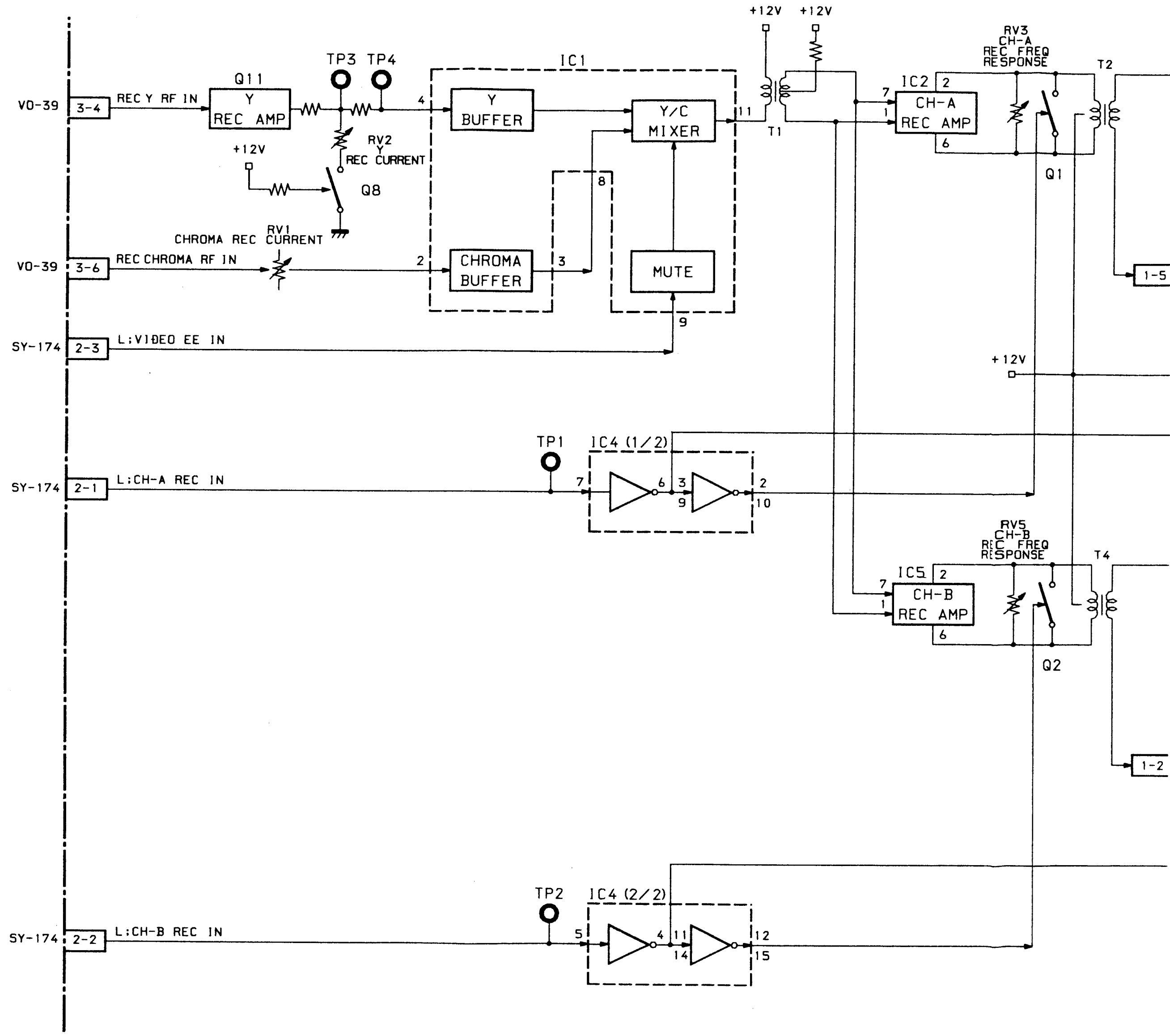
VO-9600H

VIDEO SYSTEM
BLOCK DIAGRAM

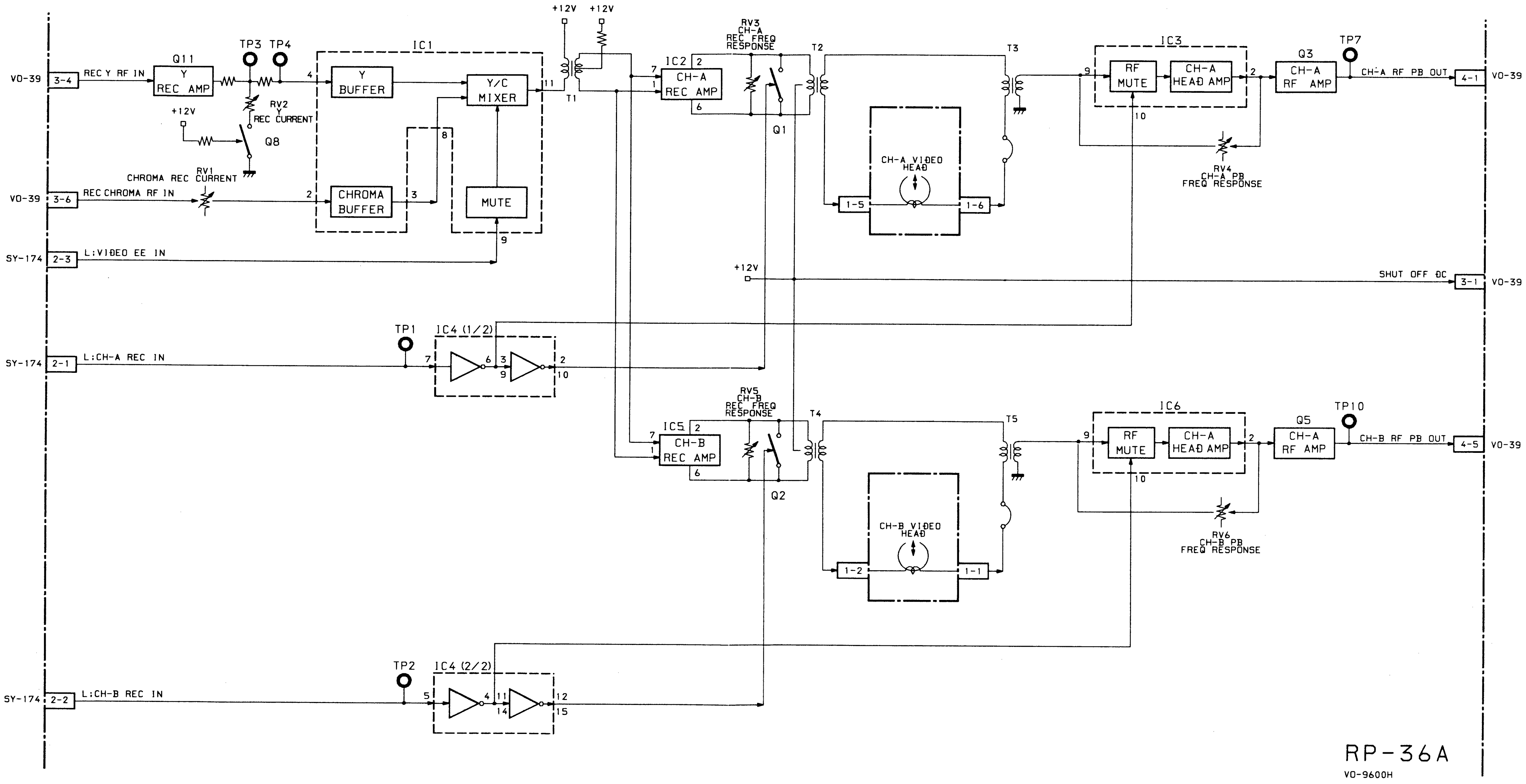

VIDEO IN (THROUGH OUT)
CN1002
CN1001
VIDEO IN
S1
75Ω ON/OFF
171-2 COMMON
171-1 GND
R1.2 75
TP1 INPUT VIDEO
Q1.2 BUFF
Q3 BUFF
Q4.5 AMP
Q6 BUFF
TP2 AMP VIDEO
FL1 LPF
Q7 BUFF
Q9 BUFF
Q8 BUFF
TP3 AGC VIDEO IN
IC5 AGC
RV2 FM DEVIATION
H:STOP/EE
REG 12V
Q32.33
MODULATE
IC6 LIMITER
RV6 HF DISTORTION
Q19 BUFF
TP10 REC Y RF
Q18 BUFF
TP9 MOD VIDEO
RF EE VIDEO
172-1 SEL 1 H:HIGH LINE
S2.3 SYSTEM SELECT
172-4 SEL 3 L:SP HL
172-6 SEL A L:SEL A (EIA)
IC2 SYNC SEP
H:HIGH LINE
Q10
TP4 SYNC TIP CLP
IC1
TP5 PEDESTAL CLP
IC3 PEDESTAL CLP WIDTH
RV1 PEDESTAL CLAMP PULSE WIDTH
Q11 BUFF
TP7 AGC VIDEO OUT
Q12.13 PRE-EMPHASIS
RV3 SYNC TIP CARRIER
Q14.15 WHITE CLIP
RV4 WHITE CLIP
Q16 DARK CLIP
RV5 DARK CLIP
Q18 BUFF
TP8 PRE-EMP VIDEO
TP6 SERVO REF
IC4
IC15 V SYNC WIDTH
R44~46.C25 LPF ATT
H:HIGH LINE
L:STOP/EE
Q208
H:STOP/MUTE
Q206 MUTE
Q201 +6V REG
REG 12V
IC201 (1/2)
CH-A PRE-AMP
CH-B PRE-AMP
RF AMP
RF AMP
RV203 PB RF BALANCE
TP204
RV202 CH-A RF RESPONCE
TP203
RV201 CH-B RF RESPONCE
RP-36A 101-6 CH-A RF
RP-36A 101-2 CH-B RF
TP201 SWP
TP202 RF SWP
R208
SV-93H 103-4 RF SWP
SV-93H 103-2 L:SERVO LOCK
SV-93H 103-3 L:SEARCH/STILL
TP230
L:SEARCH/STILL
RF SWP
SV-93H 103-1 H:SEARCHX2
AU-82 106-4 H:SEARCHX2
AU-82 106-6 H:PB MUTE OUT
SY-174 102-1 H:PB MUTE IN
H:PB MUTE
CN1102
EXT REC
173-3 EXT REC IN
IC7
IC9
TP11 EXT REC IN
IC15 POWER ON MONOSTABLE
IC10
S1003
POWER ON REC READY
174-3 REC READY IN
SY-174 102-2 EXT REC OUT
SY-174 102-3 L:VIDEO EE IN
TP12 H:STOP/EE
IC8
H:STOP/EE
H:VIDEO BYPASS
L:STOP/EE
S101 RF/EE OUT SW
Q203.Q204 RF AMP
RV204 CCIR RF LEVEL
TP206 LPF
Q205 BUFF
TP207 CCIR RF LEVEL
RV209 EIA RF LEVEL
Q216 BUFF
TP232 EIA RF LEVEL
L:EIA
IC201 (2/2)
RF AMP
DROPOUT DET
TP208 DO
DO DET
IC203 DROPOUT DET
RV205 DOC SENSITIVITY
IC204 Q209 GB DET
TP233 GB
H:STOP/MUTE
Q207
Q202 BUFF
TP209
RV210 CCIR HF LEVEL
L:EIA
Q217
IC207 +5V REG
IC202 HF EQUALIZER
RV206 HF BALANCE
TP210
Q211
TP211
IC205
L:STOP/EE
IC206 LIMITER
RV207 LIMITER BALANCE
TP212
IC208 +5V REG
IC209 DE MODURATOR
RV208 DEMO BALANCE
Q212.Q213 DE EMPHASIS
Q214 BUFF
FL202 LPF
Q215 BUFF
TP213
IC224 AMP 20dB
PB SYNC
LPF
Q220 BUFF
Q219
Q221.Q222.Q223 AMP
RV212 PB GAIN
Q248 BUFF
L:SP HL
L:SEL A
IC8
L:CCIR
L:EIA
L:SEL A
L:1125
L:1023
L:SEARCH/STILL
Q232 BUFF
IC213 CCD DL 63.5μS
Q234 BUFF
RV214 EIA/CCIR BALANCE
RV213 CCIR DO LEVEL
TP216
Q230 BUFF
DOC CK 13.3MHz
BPF
L:CCIR
Q231
TP219 DO CCIR
IC211
Q236.Q237 AMP
FL201 LPF
Q238 BUFF
RV215 DO VIDEO LEVEL
DO BALANCE
H:EIA
Q233 BUFF
IC214 CCD DL 63.8μS
Q235 BUFF
TP217
TP218 DO EIA
Q229 BUFF
DOC CK 3.5MHz
L:EIA
Q239
H:HIGH LINE
L:1125
L:SEARCH/STILL
IC226
Q245 BUFF
IC219 CCD DL 85.0μS
Q247 BUFF
RV216 JOG BALANCE
TP222
TP220
REG 12V
Q240
X201.Q241 OSC 19.6608M
Q260
IC222
Q261 Q262 AMP
FL203 LPF
Q263 BUFF
RV211 HIGH SCAN JOG LEVEL
TP223
RF SWP
Q244 BUFF
IC218 CCD DL 69.2μS
Q246 BUFF
TP221
X202.Q242 OSC 16.000MHz
Q259
H:HIGH LINE
IC226


H:STOP/EE
Q32.33
REG 12V
TP3
AGC VIDEO IN
Q7
BUFF
Q9
BUFF
Q8
BUFF
IC5
AGC
MODULATE
IC6
LIMITER
Q19
BUFF
TP10
REC Y RF
TP9
MOD VIDEO
Q18
BUFF
RF EE VIDEO
RV2
FM DEVIATION
RV6
HF DISTORTION
IC2
SYNC SEP
Q11
BUFF
Q12.13
PRE-EMPAHSIS
Q14.15
WHITE CLIP
Q16
DARK CLIP
Q18
BUFF
TP8
PRE-EMP VIDEO
TP7
AGC VIDEO OUT
RV3
SYNC TIP CARRIER
RV4
WHITE CLIP
RV5
DARK CLIP
TP4
SYNC TIP CLP
IC1
TP5
PEDESTAL CLP
IC3
PEDESTAL CLP WIDTH
RV1
PEDESTAL CLAMP PULSE WIDTH
TP6
SERVO REF
IC4
R44~46.C25
LPF
ATT
IC15
V SYNC WIDTH
H:HIGH LINE
REG 12V
L:SP HL
L:SEL A
IC8
L:CCIR
L:EIA
IC9
L:1125
L:1023
L:SEARCH/STILL
Q21
Q23
Q25
Q27
X1.Q20
OSC 4.43MHZ
X2.Q22
OSC 3.58MHZ
X3.Q24
OSC 3.84MHZ
X4.Q26
OSC 3.49MHZ
IC13.Q28
REF OSC AMP
CF1.2
13.29MHZ FILTER
IC14
LIMITER
Q29
BUFF
TP17
DOC CLK 13.3MHZ
DOC CLK 13.3MHZ
IC10
IC11
Q31
BUFF
TP16
DOC CLK 3.5MHZ
DOC CLK 3.5MHZ
L:EIA
L:SP HL
L:1023
Q30
BUFF
TP15
SERVO SC
RF VIDEO OUT
153-3
RP-36A
SERVO SC OUT
103-11
SV-93H
REF VIDEO OUT
107-2
SV-93H
TP14
H:EIA
Q34
BUFF
H:EIA OUT
107-3
SV-93H
BYPASS VIDEO
RF EE VIDEO
TP211
IC207
+5V REG
IC208
+5V REG
TP207
CCIR RF LEVEL
Q205
BUFF
LEVEL
Q216
BUFF
TP232
EIA RF LEVEL
L:EIA
IC201 (2/2)
RF AMP
DROPOUT DET
Q202
BUFF
TP209
RV210
CCIR HF LEVEL
L:EIA
Q217
IC202
HF EQUALIZER
RV206
HF BALANCE
TP210
Q211
IC205
L:STOP/EE
IC206
LIMITER
RV207
LIMITER BALANCE
TP212
IC209
DE MODURATOR
RV208
DEMO BALANCE
Q212.Q213
DE EMPHASIS
Q214
BUFF
FL202
LPF
Q215
BUFF
TP213
IC224
AMP 20dB
PB SYNC
LPF
Q219
Q220
BUFF
Q221.Q222.Q223
AMP
RV212
PB GAIN
Q248
BUFF
TP235
DO DET
Q249
MUTE
IC226
L:STOP/EE
L:SEARCH/STILL
TP208
DO
DO DET
IC203
DROPOUT DET
IC204
Q209
GB DET
TP233
GB
RV205
DOC SENSITIVITY
H:STOP/MUTE
Q207
Q232
BUFF
IC213
CCD DL 63.5uS
Q234
BUFF
RV213
RV214
EIA/CCIR BALANCE
CCIR DO LEVEL
DOC CK 13.3MHz
Q230
BUFF
BPF
TP216
L:CCIR
Q231
H:EIA
TP219
DO CCIR
IC215
L:EIA
Q236.Q237
AMP
FL201
LPF
Q238
BUFF
TP234
RV215
DO VIDEO LEVEL
RV217
DO BALANCE
Q233
BUFF
IC214
CCD DL 63.8uS
Q235
BUFF
TP218
DO EIA
TP217
DOC CK 3.5MHz
Q229
BUFF
BPF
L:EIA
Q239
H:HIGH LINE
L:1125
L:SEARCH/STILL
IC226.IC227
IC220
H:PB MUTE
Q250-Q257
IC221
NOISE CANCELLER
S201
NOICAN OFF
IC222
VD MIX
RV219
PB LEVEL
Q258
IC223
H:VIDEO BYPASS
Q265
Q266.Q267
AMP
RV220
VIDEO LEVEL
Q268
Q269
BUFF
TP231
CN1005
VIDEO OUT 3
Q270
Q271
BUFF
TP227
CN1004
VIDEO OUT 2
Q272
Q273
BUFF
TP228
CN1003
VIDEO OUT 1
IC227
Q264
VD GEN
TP229
V BLK
V BLK IN
103-6
SV-93H
L:SEARCH/STILL
TP215
PB VIDEO
Q228
BUFF
PB Y OUT
112-1
IF-132
Q245
BUFF
IC219
CCD DL 85.0uS
Q247
BUFF
TP222
RV216
JOG BALANCE
TP220
REG 12V
Q240
X201.Q241
OSC 19.6608M
BPF
Q260
IC225
Q261
Q262
AMP
FL203
LPF
Q263
BUFF
TP224
RV211
HIGH SCAN JOG LEVEL
RF SWP
Q244
BUFF
IC218
CCD DL 69.2uS
Q246
BUFF
TP223
TP221
X202.Q242
OSC 16.000MHz
BPF
Q259
H:HIGH LINE
IC226
Q225
+6V REG
PB SYNC
Q224
BUFF
IC210
PB SYNC SEP
Q227
INV
TP214
PB SYNC
PB SYNC
103-8
SV-93H
H:HIGH LINE
Q226
VO-39
VO-9600H

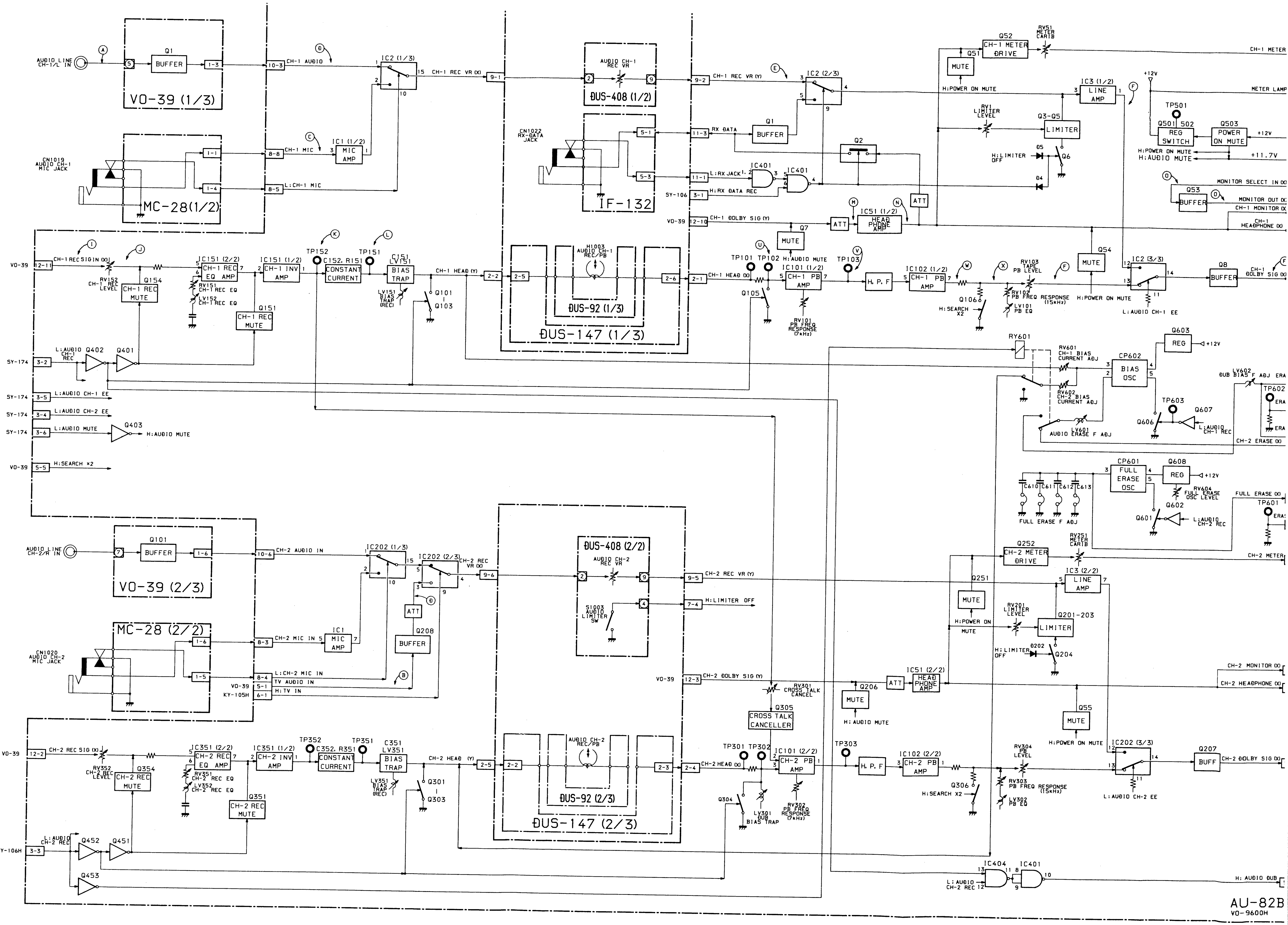
VIDEO SYSTEM
BLOCK DIAGRAM

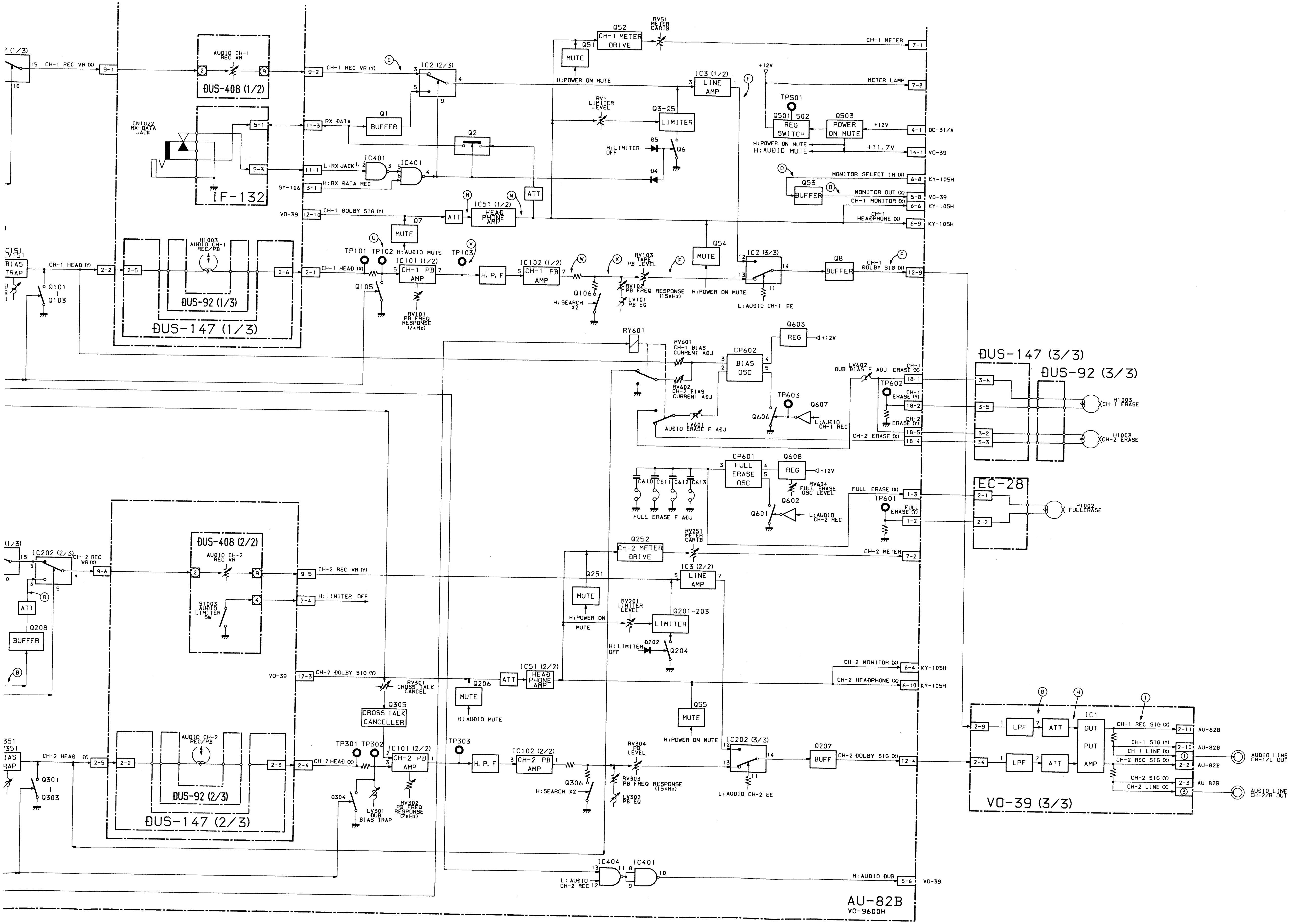

VO-39
3-4
REC Y RF IN
Q11
Y
REC AMP
TP3
TP4
RV2
Y
REC CURRENT
+12V
Q8
RV1
CHROMA REC CURRENT
VO-39
3-6
REC CHROMA RF IN
IC1
4
Y
BUFFER
Y/C
MIXER
2
CHROMA
BUFFER
3
8
MUTE
9
11
SY-174
2-3
L;VIDEO EE IN
+12V
+12V
T1
IC2
2
7
1
CH-A
REC AMP
6
RV3
CH-A
REC FREQ
RESPONSE
Q1
T2
1-5
+12V
SY-174
2-1
L:CH-A REC IN
TP1
IC4 (1/2)
7
6
3
9
2
10
RV5
CH-B
REC FREQ
RESPONSE
IC5
2
7
1
CH-B
REC AMP
6
Q2
T4
1-2
SY-174
2-2
L:CH-B REC IN
TP2
IC4 (2/2)
5
4
11
14
12
15

VIDEO SYSTEM
BLOCK DIAGRAM


VO-39
3-4
REC Y RF IN
Q11
Y REC AMP
TP3
TP4
RV2
Y REC CURRENT
+12V
Q8
IC1
Y BUFFER
Y/C MIXER
CHROMA BUFFER
MUTE
RV1
CHROMA REC CURRENT
VO-39
3-6
REC CHROMA RF IN
SY-174
2-3
L:VIDEO EE IN
+12V
+12V
T1
IC2
CH-A REC AMP
RV3
CH-A
REC FREQ RESPONSE
Q1
T2
T3
CH-A VIDEO HEAD
1-5
1-6
IC3
RF MUTE
CH-A HEAD AMP
RV4
CH-A PB FREQ RESPONSE
Q3
CH-A RF AMP
TP7
CH-A RF PB OUT
4-1
VO-39
+12V
SHUT OFF DC
3-1
VO-39
TP1
IC4 (1/2)
SY-174
2-1
L:CH-A REC IN
IC5
CH-B REC AMP
RV5
CH-B
REC FREQ RESPONSE
Q2
T4
T5
CH-B VIDEO HEAD
1-2
1-1
IC6
RF MUTE
CH-A HEAD AMP
RV6
CH-B PB FREQ RESPONSE
Q5
CH-A RF AMP
TP10
CH-B RF PB OUT
4-5
VO-39
TP2
IC4 (2/2)
SY-174
2-2
L:CH-B REC IN
RP-36A
VO-9600H

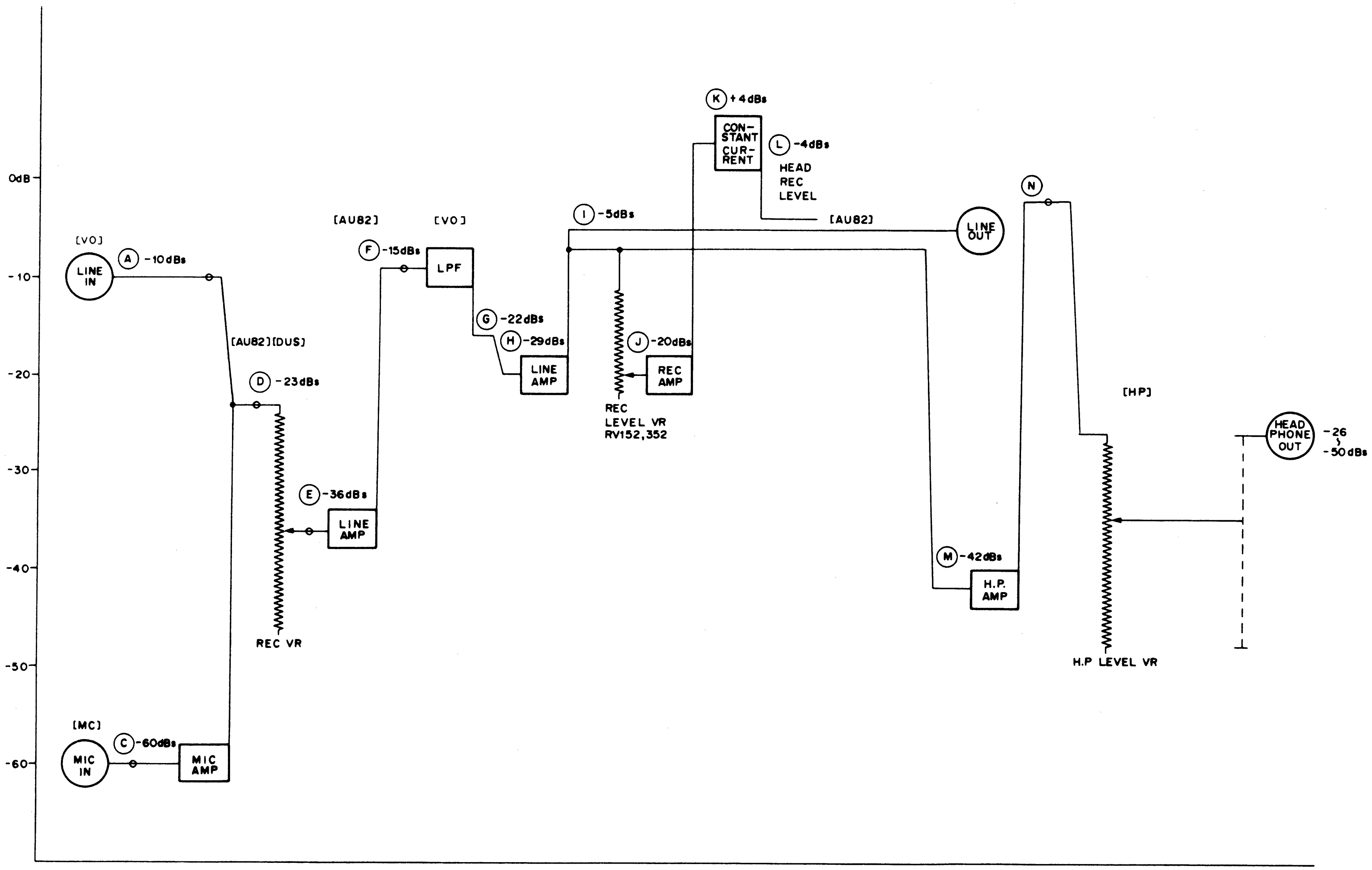
AUDIO SYSTEM BLOCK DIAGRAM


AUDIO LINE CH-1/L IN
VO-39 (1/3)
Q1 BUFFER
CN1019 AUDIO CH-1 MIC JACK
MC-28(1/2)
CH-1 AUDIO
CH-1 MIC
L:CH-1 MIC
IC2 (1/3)
IC1 (1/2) MIC AMP
CH-1 REC VR (X)
AUDIO CH-1 REC VR
ĐUS-408 (1/2)
CN1022 RX-DATA JACK
IF-132
CH-1 REC VR (Y)
RX DATA
L:RX JACK
H:RX DATA REC
SY-106
VO-39
CH-1 DOLBY SIG (Y)
IC2 (2/3)
Q1 BUFFER
IC401
Q2
Q7 MUTE
ATT
IC51 (1/2) HEAD PHONE AMP
Q52 CH-1 METER DRIVE
Q51 MUTE
RV51 METER CARIB
H:POWER ON MUTE
IC3 (1/2) LINE AMP
RV1 LIMITER LEVEL
Q3-Q5 LIMITER
H:LIMITER OFF
Q6
TP501
Q501 502 REG SWITCH
Q503 POWER ON MUTE
+12V
+11.7V
H:POWER ON MUTE
H:AUDIO MUTE
MONITOR SELECT IN
Q53 BUFFER
MONITOR OUT
CH-1 MONITOR
CH-1 HEADPHONE
CH-1 METER
METER LAMP
CH-1 REC SIG IN (X)
RV152 CH-1 REC LEVEL
Q154 CH-1 REC MUTE
IC151 (2/2) CH-1 REC EQ AMP
RV151 CH-1 REC EQ
LV152 CH-1 REC EQ
IC151 (1/2) CH-1 INV AMP
Q151 CH-1 REC MUTE
TP152
C152, R151 CONSTANT CURRENT
TP151
C151 LV151 BIAS TRAP
LV151 BIAS TRAP (REC)
Q101 Q103
CH-1 HEAD (Y)
H1003 AUDIO CH-1 REC/PB
ĐUS-92 (1/3)
ĐUS-147 (1/3)
CH-1 HEAD (X)
TP101 TP102
Q105
H:AUDIO MUTE
IC101 (1/2) CH-1 PB AMP
RV101 PB FREQ RESPONSE (7kHz)
TP103
H.P.F
IC102 (1/2) CH-1 PB AMP
Q106
H:SEARCH X2
RV103 TAPE PB LEVEL
RV102 PB FREQ RESPONSE (15kHz)
LV101 PB EQ
Q54 MUTE
H:POWER ON MUTE
IC2 (3/3)
L:AUDIO CH-1 EE
Q8 BUFFER
CH-1 DOLBY SIG
SY-174
L:AUDIO CH-1 REC
Q402 Q401
L:AUDIO CH-1 EE
L:AUDIO CH-2 EE
L:AUDIO MUTE
Q403
H:AUDIO MUTE
H:SEARCH X2
RY601
RV601 CH-1 BIAS CURRENT ADJ
RV602 CH-2 BIAS CURRENT ADJ
CP602 BIAS OSC
Q603 REG
LV602 DUB BIAS F ADJ
TP602
TP603
Q606
Q607
L:AUDIO CH-1 REC
LV601 AUDIO ERASE F ADJ
CH-2 ERASE
C610 C611 C612 C613
FULL ERASE F ADJ
CP601 FULL ERASE OSC
Q608 REG
RV604 FULL ERASE OSC LEVEL
FULL ERASE
TP601
Q602
Q601
L:AUDIO CH-2 REC
AUDIO LINE CH-2/R IN
Q101 BUFFER
VO-39 (2/3)
CH-2 AUDIO IN
IC202 (1/3)
IC202 (2/3)
CH-2 REC VR (X)
ATT
Q208 BUFFER
CN1020 AUDIO CH-2 MIC JACK
MC-28 (2/2)
CH-2 MIC IN
IC1 MIC AMP
L:CH-2 MIC IN
TV AUDIO IN
H:TV IN
KY-105H
ĐUS-408 (2/2)
AUDIO CH-2 REC VR
S1003 AUDIO LIMITER SW
CH-2 REC VR (Y)
H:LIMITER OFF
CH-2 DOLBY SIG (Y)
RV301 CROSS TALK CANCEL
Q305 CROSS TALK CANCELLER
Q206 MUTE
H:AUDIO MUTE
IC51 (2/2) HEAD PHONE AMP
Q252 CH-2 METER DRIVE
RV251 METER CARIB
Q251 MUTE
H:POWER ON MUTE
IC3 (2/2) LINE AMP
RV201 LIMITER LEVEL
Q201-203 LIMITER
H:LIMITER OFF
Q202 Q204
Q55 MUTE
CH-2 METER
CH-2 MONITOR
CH-2 HEADPHONE
CH-2 REC SIG (X)
RV352 CH-2 REC LEVEL
Q354 CH-2 REC MUTE
IC351 (2/2) CH-2 REC EQ AMP
RV351 CH-2 REC EQ
LV352 CH-2 REC EQ
IC351 (1/2) CH-2 INV AMP
Q351 CH-2 REC MUTE
TP352
C352, R351 CONSTANT CURRENT
TP351
C351 LV351 BIAS TRAP
LV351 BIAS TRAP (REC)
Q301 Q303
CH-2 HEAD (Y)
AUDIO CH-2 REC/PB
ĐUS-92 (2/3)
ĐUS-147 (2/3)
CH-2 HEAD (X)
TP301 TP302
Q304
LV301 DUB BIAS TRAP
IC101 (2/2) CH-2 PB AMP
RV302 PB FREQ RESPONSE (7kHz)
TP303
H.P.F
IC102 (2/2) CH-2 PB AMP
Q306
H:SEARCH X2
RV304 PB LEVEL
RV303 PB FREQ RESPONSE (15kHz)
LV302 PB EQ
H:POWER ON MUTE
IC202 (3/3)
L:AUDIO CH-2 EE
Q207 BUFF
CH-2 DOLBY SIG
SY-106H
L:AUDIO CH-2 REC
Q452 Q451
Q453
IC404 IC401
L:AUDIO CH-2 REC
H:AUDIO DUB
AU-82B
VO-9600H

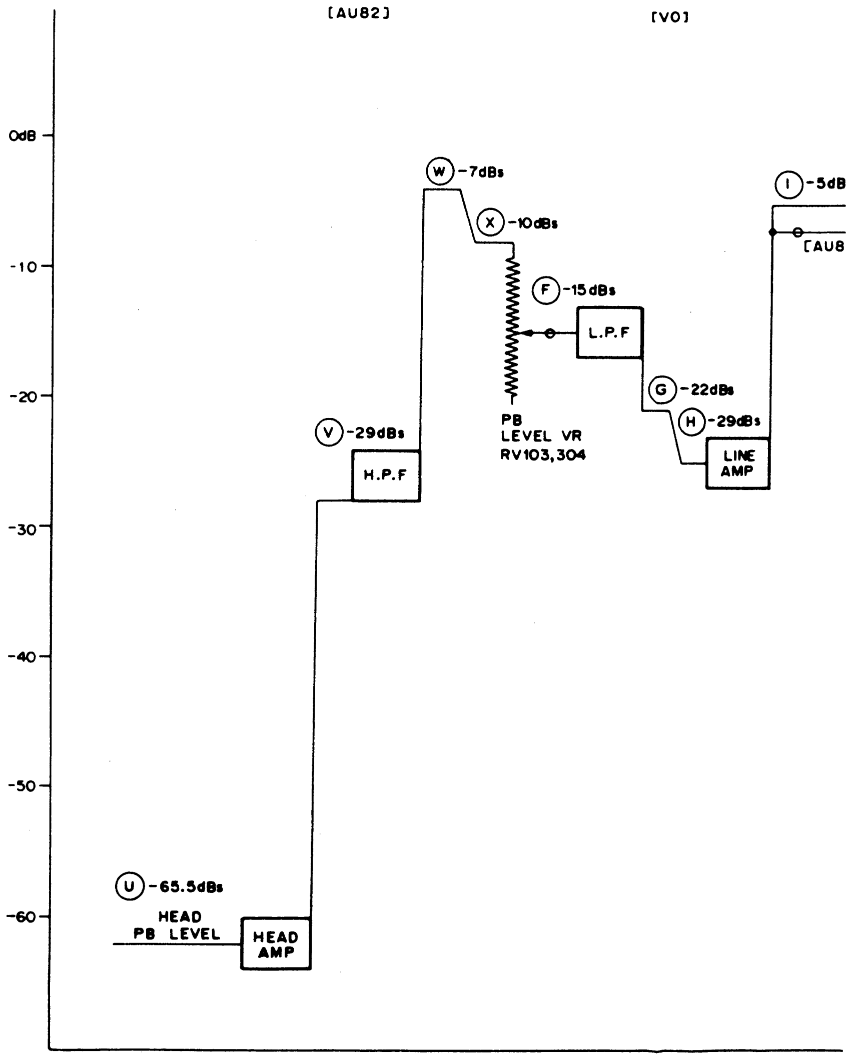

DUS-408 (1/2)
AUDIO CH-1 REC VR
CH-1 REC VR (X)
CH-1 REC VR (Y)
IC2 (2/3)
Q52
CH-1 METER DRIVE
RV51 METER CARIB
CH-1 METER
Q51
MUTE
H:POWER ON MUTE
IC3 (1/2)
LINE AMP
+12V
METER LAMP
RV1 LIMITER LEVEL
Q3-Q5
LIMITER
TP501
Q501 502
REG SWITCH
Q503
POWER ON MUTE
DC-31/A
H:POWER ON MUTE
H:AUDIO MUTE
+11.7V
VO-39
H:LIMITER OFF
D5
Q6
D4
CN1022 RX-DATA JACK
RX DATA
Q1
BUFFER
Q2
IC401
L:RX JACK
H:RX DATA REC
SY-106
IF-132
ATT
MONITOR SELECT IN (X)
KY-105H
Q53
BUFFER
MONITOR OUT (X)
CH-1 MONITOR (X)
CH-1 HEADPHONE (X)
CH-1 DOLBY SIG (Y)
IC51 (1/2)
HEAD PHONE AMP
Q7
MUTE
TP101 TP102 H:AUDIO MUTE
TP103
H1003 AUDIO CH-1 REC/PB
CH-1 HEAD (Y)
CH-1 HEAD (X)
IC101 (1/2)
CH-1 PB AMP
H.P.F
IC102 (1/2)
CH-1 PB AMP
RV103 TAPE PB LEVEL
Q54
IC2 (3/3)
Q8
BUFFER
CH-1 DOLBY SIG (X)
BIAS TRAP
Q101 Q103
Q105
RV101 PB FREQ RESPONSE (7kHz)
Q106
H:SEARCH X2
RV102 PB FREQ RESPONSE (15kHz)
LV101 PB EQ
H:POWER ON MUTE
L:AUDIO CH-1 EE
DUS-92 (1/3)
DUS-147 (1/3)
RY601
Q603
REG
RV601 CH-1 BIAS CURRENT ADJ
CP602
BIAS OSC
RV602 CH-2 BIAS CURRENT ADJ
LV601 AUDIO ERASE F ADJ
LV602 DUB BIAS F ADJ
CH-1 ERASE (X)
TP602
CH-1 ERASE (Y)
CH-2 ERASE (Y)
CH-2 ERASE (X)
TP603
Q607
Q606
L:AUDIO CH-1 REC
DUS-147 (3/3)
DUS-92 (3/3)
H1003 CH-1 ERASE
H1003 CH-2 ERASE
CP601
FULL ERASE OSC
Q608
REG
RV604 FULL ERASE OSC LEVEL
C610 C611 C612 C613
FULL ERASE F ADJ
Q602
Q601
L:AUDIO CH-2 REC
FULL ERASE (X)
TP601
FULL ERASE (Y)
EC-28
H1002 FULLERASE
Q252
CH-2 METER DRIVE
RV251 METER CARIB
CH-2 METER
IC3 (2/2)
LINE AMP
Q251
MUTE
H:POWER ON MUTE
RV201 LIMITER LEVEL
Q201-203
LIMITER
H:LIMITER OFF
D202
Q204
DUS-408 (2/2)
AUDIO CH-2 REC VR
CH-2 REC VR (X)
CH-2 REC VR (Y)
IC202 (2/3)
S1003 AUDIO LIMITER SW
H:LIMITER OFF
ATT
Q208
BUFFER
CH-2 DOLBY SIG (Y)
RV301 CROSS TALK CANCEL
Q305
CROSS TALK CANCELLER
IC51 (2/2)
HEAD PHONE AMP
Q206
MUTE
H:AUDIO MUTE
CH-2 MONITOR (X)
CH-2 HEADPHONE (X)
Q55
MUTE
H:POWER ON MUTE
H1003 AUDIO CH-2 REC/PB
CH-2 HEAD (Y)
CH-2 HEAD (X)
TP301 TP302
IC101 (2/2)
CH-2 PB AMP
TP303
H.P.F
IC102 (2/2)
CH-2 PB AMP
RV304 PB LEVEL
IC202 (3/3)
Q207
BUFF
CH-2 DOLBY SIG (X)
Q301 Q303
Q304
LV301 DUB BIAS TRAP
RV302 PB FREQ RESPONSE (7kHz)
Q306
H:SEARCH X2
RV303 PB FREQ RESPONSE (15kHz)
LV302 PB EQ
L:AUDIO CH-2 EE
DUS-92 (2/3)
DUS-147 (2/3)
IC404 IC401
L:AUDIO CH-2 REC
H:AUDIO DUB
LPF
ATT
IC1
OUT PUT AMP
CH-1 REC SIG (X)
CH-1 SIG (Y)
CH-1 LINE (X)
CH-2 REC SIG (X)
CH-2 SIG (Y)
CH-2 LINE (X)
AU-82B
AUDIO LINE CH-1/L OUT
AUDIO LINE CH-2/R OUT
VO-39 (3/3)
AU-82B
VO-9600H

AUDIO LEVEL DIAGRAM

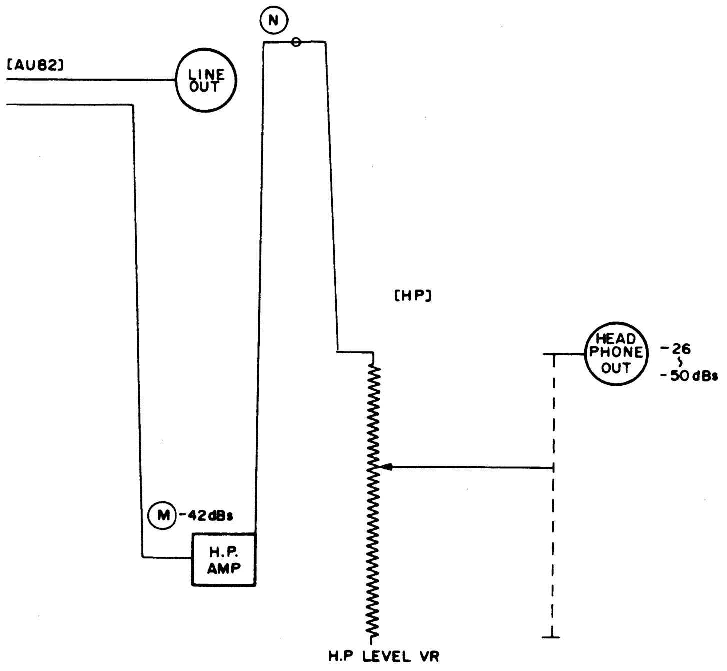
Audio Level Diagram EE, REC


0dB
-10
-20
-30
-40
-50
-60
[VO]
LINE IN
Ⓐ -10dBs
[AU82][DUS]
Ⓓ -23dBs
REC VR
[MC]
MIC IN
Ⓒ -60dBs
MIC AMP
Ⓔ -36dBs
LINE AMP
[AU82]
[VO]
Ⓕ -15dBs
LPF
Ⓖ -22dBs
Ⓗ -29dBs
LINE AMP
Ⓘ -5dBs
Ⓙ -20dBs
REC AMP
REC LEVEL VR RV152,352
Ⓚ +4dBs
CON-STANT CUR-RENT
Ⓛ -4dBs
HEAD REC LEVEL
[AU82]
LINE OUT
Ⓝ
Ⓜ -42dBs
H.P. AMP
[HP]
H.P LEVEL VR
HEAD PHONE OUT
-26 ~ -50dBs

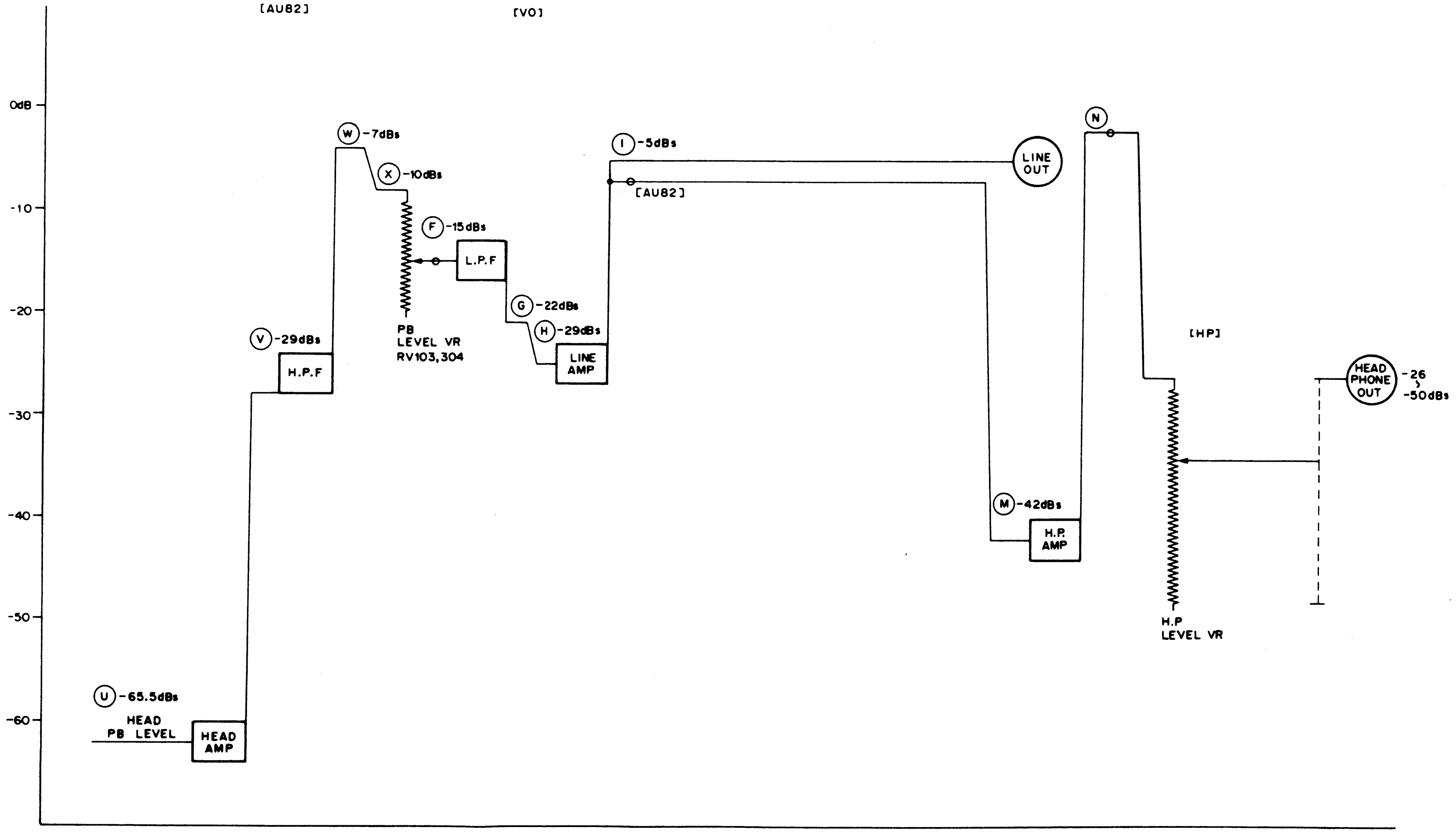
Audio


0dB
-10
-20
-30
-40
-50
-60
[AU82]
[VO]
Ⓤ -65.5dBs
HEAD PB LEVEL
HEAD AMP
Ⓥ -29dBs
H.P.F
Ⓦ -7dBs
Ⓧ -10dBs
PB LEVEL VR RV103,304
Ⓕ -15dBs
L.P.F
Ⓖ -22dBs
Ⓗ -29dBs
LINE AMP
Ⓘ -5dB
[AU8

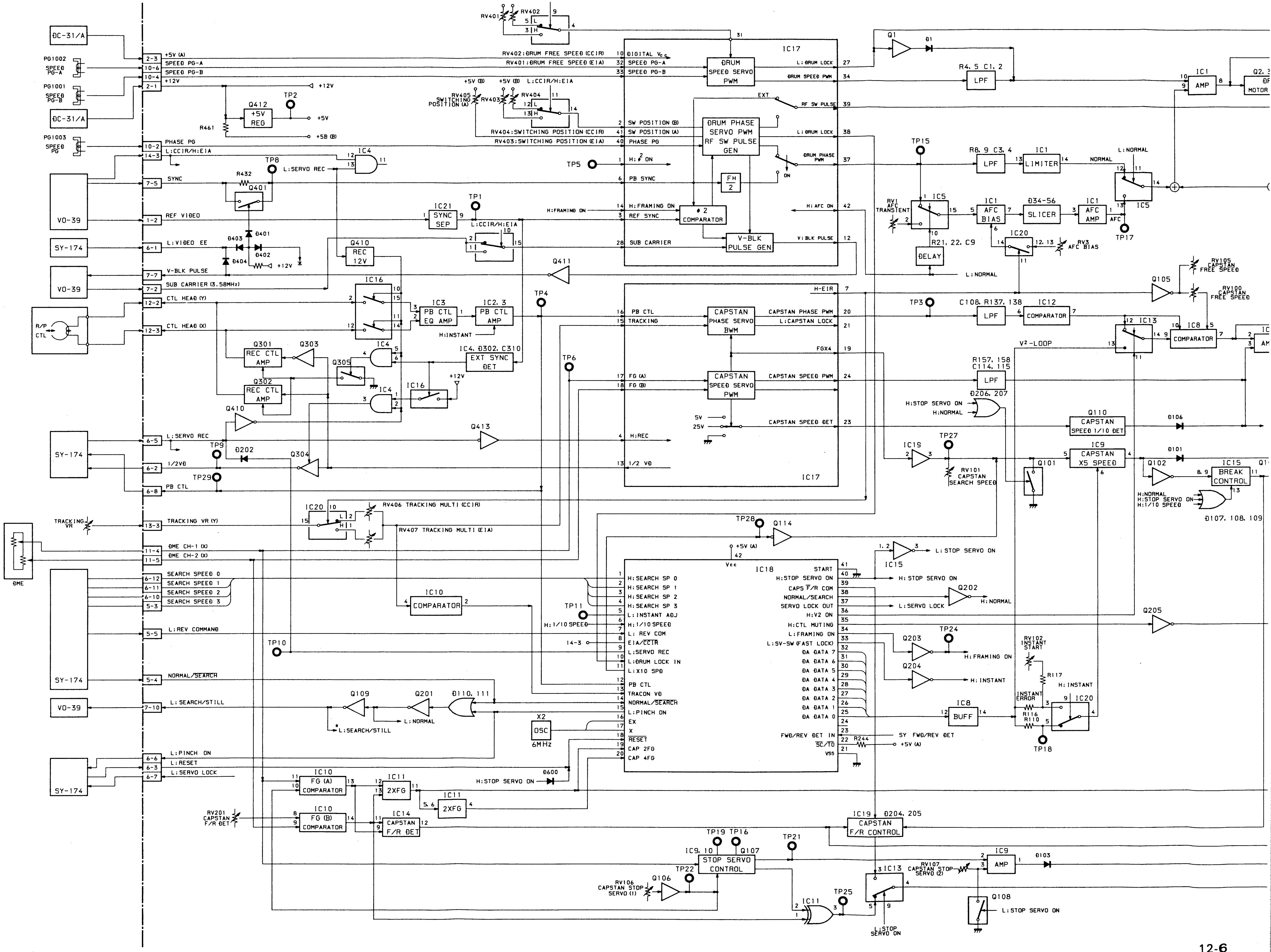
EE, REC

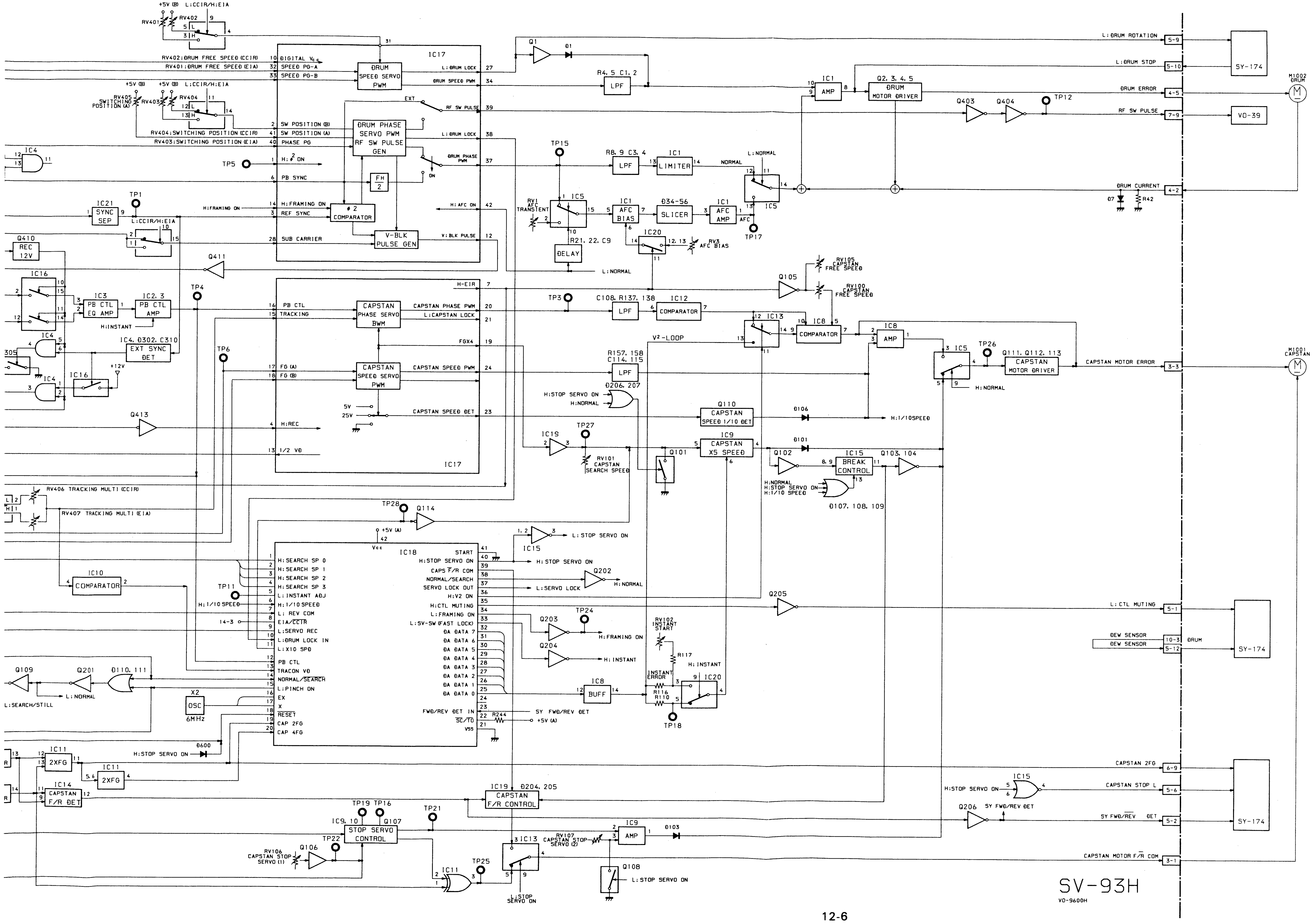

[AU82]
LINE OUT
N
[HP]
HEAD PHONE OUT
-26 ~ -50dBs
M -42dBs
H.P. AMP
H.P LEVEL VR

Audio Level Diagram PB

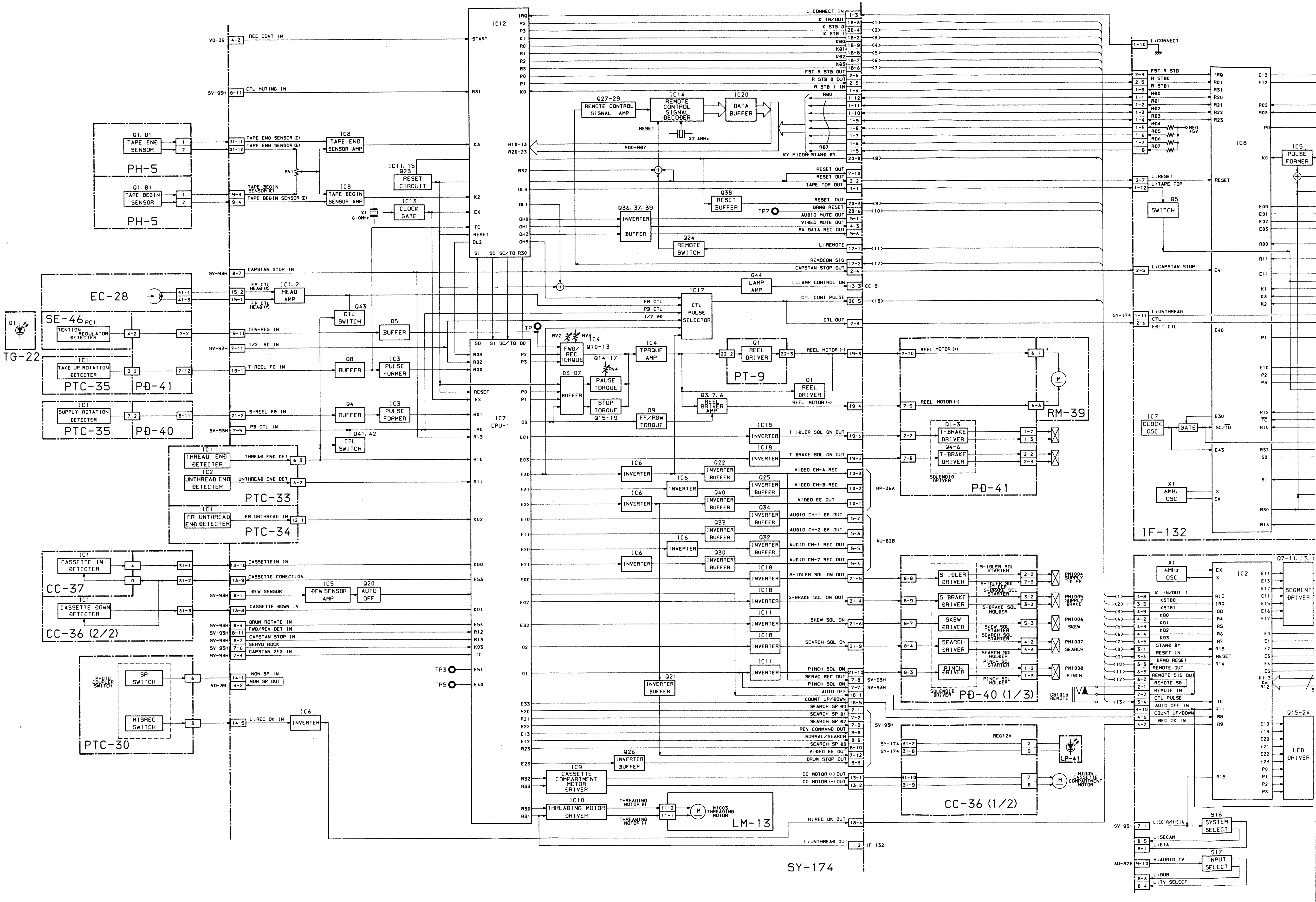

0dB
-10
-20
-30
-40
-50
-60
[AU82]
[VO]
U -65.5dBs
HEAD PB LEVEL
HEAD AMP
V -29dBs
H.P.F
W -7dBs
X -10dBs
F -15dBs
L.P.F
PB LEVEL VR RV103,304
G -22dBs
H -29dBs
LINE AMP
I -5dBs
[AU82]
LINE OUT
N
[HP]
M -42dBs
H.P. AMP
H.P LEVEL VR
HEAD PHONE OUT
-26 ~ -50dBs

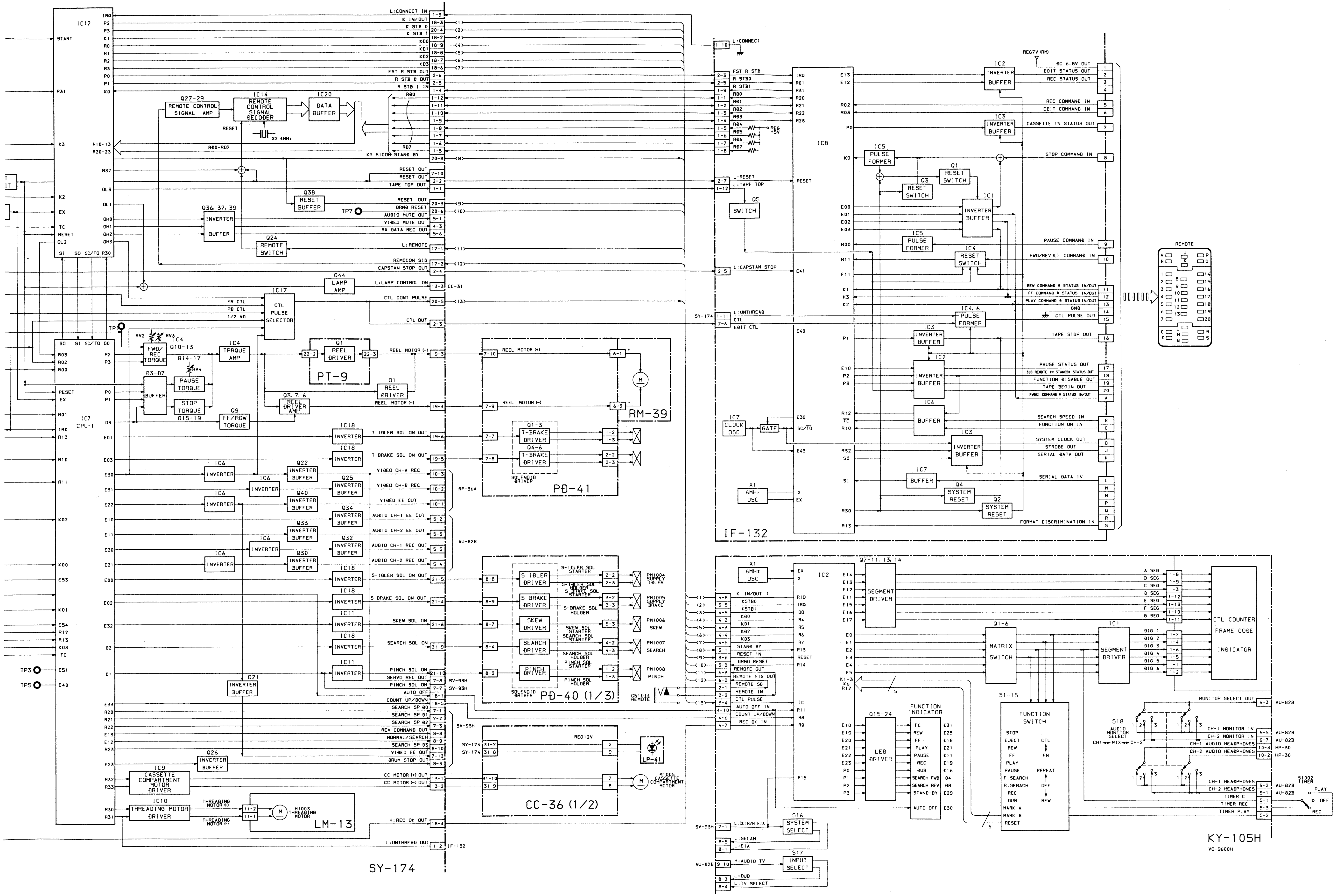
SERVO SYSTEM
BLOCK DIAGRAM


DC-31/A
PG1002 SPEED PG-A
PG1001 SPEED PG-B
DC-31/A
PG1003 SPEED PG
VD-39
SY-174
VD-39
R/P CTL
SY-174
TRACKING VR
DME
SY-174
VD-39
SY-174
+5V (A)
SPEED PG-A
SPEED PG-B
+12V
PHASE PG
L:CCIR/H:EIA
SYNC
REF VIDEO
L:VIDEO EE
V-BLK PULSE
SUB CARRIER (3.58MHz)
CTL HEAD (Y)
CTL HEAD (X)
L:SERVO REC
1/2VD
PB CTL
TRACKING VR (Y)
DME CH-1 (X)
DME CH-2 (X)
SEARCH SPEED 0
SEARCH SPEED 1
SEARCH SPEED 2
SEARCH SPEED 3
L:REV COMMAND
NORMAL/SEARCH
L:SEARCH/STILL
L:PINCH ON
L:RESET
L:SERVO LOCK
Q412 +5V REG
TP2
R461
+5V
+5B (B)
TP8
R432
Q401
L:SERVO REC
IC4
D401 D402 D403 D404
Q410 REC 12V
IC16
IC3 PB CTL EQ AMP
IC2, 3 PB CTL AMP
H:INSTANT
Q301 REC CTL AMP
Q303
Q305
Q302 REC CTL AMP
IC4, Q302, C310 EXT SYNC DET
IC16
Q410
Q413
TP9
D202
Q304
TP29
IC21 SYNC SEP
TP1
L:CCIR/H:EIA
Q411
TP4
TP6
TP5
IC20
RV406 TRACKING MULTI (CCIR)
RV407 TRACKING MULTI (EIA)
IC10 COMPARATOR
TP10
TP11
H:1/10 SPEED
Q109
Q201
D110, 111
L:NORMAL
L:SEARCH/STILL
X2 OSC 6MHz
D600
H:STOP SERVO ON
IC10 FG (A) COMPARATOR
IC11 2XFG
IC11 2XFG
RV201 CAPSTAN F/R DET
IC10 FG (B) COMPARATOR
IC14 CAPSTAN F/R DET
+5V (B) L:CCIR/H:EIA
RV401 RV402
RV405 SWITCHING POSITION (A)
RV403 RV404
RV402:DRUM FREE SPEED (CCIR)
RV401:DRUM FREE SPEED (EIA)
RV404:SWITCHING POSITION (CCIR)
RV403:SWITCHING POSITION (EIA)
IC17
DIGITAL Vcc
SW POSITION (B)
SW POSITION (A)
PHASE PG
H:2/ ON
PB SYNC
H:FRAMING ON
REF SYNC
SUB CARRIER
DRUM SPEED SERVO PWM
DRUM PHASE SERVO PWM RF SW PULSE GEN
FH/2
φ2 COMPARATOR
V-BLK PULSE GEN
L:DRUM LOCK
DRUM SPEED PWM
EXT
RF SW PULSE
DRUM PHASE PWM
ON
H:AFC ON
V:BLK PULSE
H-EIR
PB CTL
TRACKING
CAPSTAN PHASE SERVO BWM
CAPSTAN PHASE PWM
L:CAPSTAN LOCK
FGX4
FG (A)
FG (B)
CAPSTAN SPEED SERVO PWM
CAPSTAN SPEED PWM
5V
25V
CAPSTAN SPEED DET
H:REC
1/2 VD
TP28
Q114
+5V (A)
IC18
H:SEARCH SP 0
H:SEARCH SP 1
H:SEARCH SP 2
H:SEARCH SP 3
L:INSTANT ADJ
H:1/10 SPEED
L:REV COM
EIA/CCIR
L:SERVO REC
L:DRUM LOCK IN
L:X10 SPD
PB CTL
TRACON VD
NORMAL/SEARCH
L:PINCH ON
EX
X
RESET
CAP 2FG
CAP 4FG
START
H:STOP SERVO ON
CAPS F/R COM
NORMAL/SEARCH
SERVO LOCK OUT
H:V2 ON
H:CTL MUTING
L:FRAMING ON
L:SV-SW (FAST LOCK)
DA DATA 7
DA DATA 6
DA DATA 5
DA DATA 4
DA DATA 3
DA DATA 2
DA DATA 1
DA DATA 0
FWD/REV DET IN
SC/TD
VSS
R244
SY FWD/REV DET
Q1
D1
R4, 5 C1, 2
LPF
IC1 AMP
Q2, 3 DR MOTOR
TP15
R8, 9 C3, 4 LPF
IC1 LIMITER
NORMAL
L:NORMAL
IC5
RV1 AFC TRANSIENT
IC5
IC1 AFC BIAS
D34-56 SLICER
IC1 AFC AMP
AFC
TP17
R21, 22, C9
DELAY
IC20
RV3 AFC BIAS
L:NORMAL
Q105
RV105 CAPSTAN FREE SPEED
RV100 CAPSTAN FREE SPEED
TP3
C108, R137, 138 LPF
IC12 COMPARATOR
IC13
IC8 COMPARATOR
V2-LOOP
R157, 158 C114, 115 LPF
D206, 207
H:STOP SERVO ON
H:NORMAL
Q110 CAPSTAN SPEED 1/10 DET
D106
IC15
TP27
RV101 CAPSTAN SEARCH SPEED
Q101
IC9 CAPSTAN X5 SPEED
Q102
D101
IC15 BREAK CONTROL
H:NORMAL
H:STOP SERVO ON
H:1/10 SPEED
D107, 108, 109
IC15
L:STOP SERVO ON
H:STOP SERVO ON
Q202
H:NORMAL
L:SERVO LOCK
Q205
Q203
TP24
H:FRAMING ON
Q204
H:INSTANT
RV102 INSTANT START
R117
H:INSTANT
INSTANT ERROR
R116
R110
IC20
IC8 BUFF
TP18
IC19 D204, 205 CAPSTAN F/R CONTROL
TP19 TP16
IC9, 10 Q107
STOP SERVO CONTROL
TP21
TP22
Q106
RV106 CAPSTAN STOP SERVO (1)
IC11
TP25
IC13
L:STOP SERVO ON
RV107 CAPSTAN STOP SERVO (2)
IC9 AMP
D103
Q108
L:STOP SERVO ON


+5V (B) L:CCIR/H:EIA
RV401
RV402
RV402:DRUM FREE SPEED (CCIR)
RV401:DRUM FREE SPEED (EIA)
RV405 SWITCHING POSITION (A)
RV403
RV404
RV404:SWITCHING POSITION (CCIR)
RV403:SWITCHING POSITION (EIA)
IC17
DIGITAL Vcc
SPEED PG-A
SPEED PG-B
DRUM SPEED SERVO PWM
L:DRUM LOCK
DRUM SPEED PWM
EXT
RF SW PULSE
SW POSITION (B)
SW POSITION (A)
PHASE PG
DRUM PHASE SERVO PWM RF SW PULSE GEN
DRUM PHASE PWM
H:2/φ ON
TP5
PB SYNC
FH/2
H:FRAMING ON
REF SYNC
φ2 COMPARATOR
H:AFC ON
V-BLK PULSE GEN
V:BLK PULSE
SUB CARRIER
IC4
IC21 SYNC SEP
TP1
L:CCIR/H:EIA
Q410 REC 12V
Q411
IC16
IC3 PB CTL EQ AMP
IC2, 3 PB CTL AMP
H:INSTANT
TP4
IC4, D302, C310 EXT SYNC DET
+12V
TP6
H-EIR
PB CTL
TRACKING
CAPSTAN PHASE SERVO BWM
CAPSTAN PHASE PWM
L:CAPSTAN LOCK
FGX4
FG (A)
FG (B)
CAPSTAN SPEED SERVO PWM
CAPSTAN SPEED PWM
5V
25V
CAPSTAN SPEED DET
Q413
H:REC
1/2 VD
RV406 TRACKING MULTI (CCIR)
RV407 TRACKING MULTI (EIA)
Q1
D1
R4, 5 C1, 2 LPF
L:DRUM ROTATION
L:DRUM STOP
IC1 AMP
Q2, 3, 4, 5 DRUM MOTOR DRIVER
DRUM ERROR
Q403
Q404
TP12
RF SW PULSE
TP15
R8, 9 C3, 4 LPF
IC1 LIMITER
NORMAL
L:NORMAL
IC5
DRUM CURRENT
D7
R42
RV1 AFC TRANSIENT
IC1 AFC BIAS
D34-56 SLICER
IC1 AFC AMP
AFC
TP17
IC20
RV3 AFC BIAS
R21, 22, C9 DELAY
L:NORMAL
Q105
RV105 CAPSTAN FREE SPEED
RV100 CAPSTAN FREE SPEED
TP3
C108, R137, 138 LPF
IC12 COMPARATOR
IC13
IC8 COMPARATOR
IC8 AMP
V²-LOOP
TP26
IC5
Q111, Q112, 113 CAPSTAN MOTOR DRIVER
CAPSTAN MOTOR ERROR
H:NORMAL
R157, 158 C114, 115 LPF
D206, 207
H:STOP SERVO ON
H:NORMAL
Q110 CAPSTAN SPEED 1/10 DET
D106
H:1/10SPEED
IC19
TP27
RV101 CAPSTAN SEARCH SPEED
Q101
IC9 CAPSTAN X5 SPEED
D101
Q102
IC15 BREAK CONTROL
Q103, 104
H:NORMAL
H:STOP SERVO ON
H:1/10 SPEED
D107, 108, 109
TP28
Q114
+5V (A)
Vcc
IC18
H:SEARCH SP 0
H:SEARCH SP 1
H:SEARCH SP 2
H:SEARCH SP 3
L:INSTANT ADJ
H:1/10SPEED
L:REV COM
EIA/CCIR
L:SERVO REC
L:DRUM LOCK IN
L:X10 SPD
PB CTL
TRACON VD
NORMAL/SEARCH
L:PINCH ON
EX
X
RESET
CAP 2FG
CAP 4FG
START
H:STOP SERVO ON
CAPS F/R COM
NORMAL/SEARCH
SERVO LOCK OUT
H:V2 ON
H:CTL MUTING
L:FRAMING ON
L:SV-SW (FAST LOCK)
DA DATA 7
DA DATA 6
DA DATA 5
DA DATA 4
DA DATA 3
DA DATA 2
DA DATA 1
DA DATA 0
FWD/REV DET IN
SC/TO
VSS
R244
IC15
L:STOP SERVO ON
Q202
H:NORMAL
L:SERVO LOCK
Q205
L:CTL MUTING
Q203
TP24
H:FRAMING ON
Q204
H:INSTANT
IC8 BUFF
RV102 INSTANT START
R117
H:INSTANT
INSTANT ERROR
R116
R110
IC20
TP18
SY FWD/REV DET
+5V (A)
TP11
H:1/10 SPEED
14-3
IC10 COMPARATOR
Q109
Q201
D110, 111
L:NORMAL
L:SEARCH/STILL
X2 OSC 6MHz
H:STOP SERVO ON
D600
IC11 2XFG
IC11 2XFG
IC14 CAPSTAN F/R DET
IC19, D204, 205 CAPSTAN F/R CONTROL
TP19 TP16
TP21
IC9, 10 STOP SERVO CONTROL
Q107
TP22
Q106
RV106 CAPSTAN STOP SERVO (1)
IC11
TP25
IC13
RV107 CAPSTAN STOP SERVO (2)
IC9 AMP
D103
Q108
L:STOP SERVO ON
L:STOP SERVO ON
CAPSTAN 2FG
IC15
H:STOP SERVO ON
CAPSTAN STOP L
Q206
SY FWD/REV DET
SY FWD/REV DET
CAPSTAN MOTOR F/R COM
DEW SENSOR
DEW SENSOR
DRUM
5-9
5-10
4-5
7-9
4-2
3-3
5-1
10-3
5-12
6-9
5-6
5-2
3-1
SY-174
VO-39
SY-174
SY-174
M1002 DRUM
M1001 CAPSTAN
SV-93H
VO-9600H

SYSTEM CONTROL BLOCK DIAGRAM


IC12
START
IC7
CPU-1
REC CONT IN
CTL MUTING IN
TAPE END SENSOR
TAPE BEGIN SENSOR
PH-5
PH-5
IC8
TAPE END SENSOR AMP
TAPE BEGIN SENSOR AMP
IC11, 15
Q23
RESET CIRCUIT
IC13
CLOCK GATE
X1 6.0MHz
Q27-29
REMOTE CONTROL SIGNAL AMP
IC14
REMOTE CONTROL SIGNAL DECODER
X2 4MHz
IC20
DATA BUFFER
Q38
RESET BUFFER
TP7
Q36, 37, 39
INVERTER
BUFFER
Q24
REMOTE SWITCH
Q44
LAMP AMP
IC17
CTL PULSE SELECTOR
EC-28
IC1, 2
HEAD AMP
Q43
CTL SWITCH
SE-46
TENTION REGULATOR DETECTER
TG-22
PTC-35
PD-41
TAKE UP ROTATION DETECTER
SUPPLY ROTATION DETECTER
PTC-35
PD-40
Q5
BUFFER
Q8
BUFFER
IC3
PULSE FORMER
Q4
BUFFER
IC3
PULSE FORMER
Q41, 42
CTL SWITCH
IC4
Q10-13
FWD/REC TORQUE
Q14-17
PAUSE TORQUE
STOP TORQUE
Q15-19
Q3-Q7
BUFFER
Q9
FF/REW TORQUE
IC4
TORQUE AMP
Q1
REEL DRIVER
PT-9
Q1
REEL DRIVER
Q3, 7, 6
REEL DRIVER AMP
RM-39
PTC-33
THREAD END DETECTER
UNTHREAD END DETECTER
PTC-34
FR UNTHREAD END DETECTER
CC-37
CASSETTE IN DETECTER
CASSETTE DOWN DETECTER
CC-36 (2/2)
IC5
DEW SENSOR AMP
Q20
AUTO OFF
PTC-30
PHOTO COUPLER SWITCH
SP SWITCH
MISREC SWITCH
IC6
INVERTER
IC18
INVERTER
IC11
INVERTER
Q21
INVERTER BUFFER
Q22, Q25, Q40, Q34, Q33, Q32, Q30
INVERTER BUFFER
Q26
INVERTER BUFFER
IC9
CASSETTE COMPARTMENT MOTOR DRIVER
IC10
THREADING MOTOR DRIVER
LM-13
M1003 THREADING MOTOR
PD-41
Q1-3 T-BRAKE DRIVER
Q4-6 T-BRAKE DRIVER
SOLENOID DRIVER
PD-40 (1/3)
S IDLER DRIVER
S BRAKE DRIVER
SKEW DRIVER
SEARCH DRIVER
PINCH DRIVER
PM1004 SUPPLY IDLER
PM1005 SUPPLY BRAKE
PM1006 SKEW
PM1007 SEARCH
PM1008 PINCH
CN1014 REMOTE
REG12V
LP-41
CC-36 (1/2)
M1005 CASSETTE COMPARTMENT MOTOR
RP-36A
AU-82B
SY-174
IF-132
IC8
IC5 PULSE FORMER
Q5 SWITCH
IC7 CLOCK OSC
GATE
X1 6MHz OSC
IC2
X1 6MHz OSC
Q7-11, 13
SEGMENT DRIVER
Q15-24
LED DRIVER
S16 SYSTEM SELECT
S17 INPUT SELECT
L:CCIR/H:EIA
L:SECAM
L:EIA
H:AUDIO TV
L:DUB
L:TV SELECT


IC12
IC14 REMOTE CONTROL SIGNAL DECODER
IC20 DATA BUFFER
Q27-29 REMOTE CONTROL SIGNAL AMP
X2 4MHz
Q38 RESET BUFFER
Q36, 37, 39 INVERTER BUFFER
Q24 REMOTE SWITCH
TP7
Q44 LAMP AMP
IC17 CTL PULSE SELECTOR
IC4 FWD/REC TORQUE
IC4 TPRQUE AMP
Q10-13
Q14-17 PAUSE TORQUE
Q3-Q7 BUFFER
Q15-19 STOP TORQUE
Q9 FF/RGW TORQUE
Q1 REEL DRIVER
PT-9
Q3, 7, 6 REEL DRIVER AMP
IC7 CPU-1
IC18 INVERTER
IC6 INVERTER
Q22 INVERTER BUFFER
Q25 INVERTER BUFFER
Q40 INVERTER BUFFER
Q34 INVERTER BUFFER
Q33 INVERTER BUFFER
Q32 INVERTER BUFFER
Q30 INVERTER BUFFER
IC11 INVERTER
Q21 INVERTER BUFFER
Q26 INVERTER BUFFER
IC9 CASSETTE COMPARTMENT MOTOR DRIVER
IC10 THREADING MOTOR DRIVER
M1003 THREADING MOTOR
LM-13
SY-174
RP-36A
AU-82B
SV-93H
RM-39
Q1-3 T-BRAKE DRIVER
Q4-6 T-BRAKE DRIVER
SOLENOID DRIVER
PD-41
S IDLER DRIVER
S BRAKE DRIVER
SKEW DRIVER
SEARCH DRIVER
PINCH DRIVER
PD-40 (1/3)
PM1004 SUPPLY IDLER
PM1005 SUPPLY BRAKE
PM1006 SKEW
PM1007 SEARCH
PM1008 PINCH
CN1014 REMOTE
REG12V
LP-41
M1005 CASSETTE COMPARTMENT MOTOR
CC-36 (1/2)
IF-132
IC8
IC2 INVERTER BUFFER
IC3 INVERTER BUFFER
IC5 PULSE FORMER
Q1 RESET SWITCH
Q3 RESET SWITCH
IC1 INVERTER BUFFER
IC4 RESET SWITCH
IC4, 6 PULSE FORMER
IC6 BUFFER
IC7 CLOCK OSC
GATE
X1 6MHz OSC
IC7 BUFFER
Q4 SYSTEM RESET
Q2 SYSTEM RESET
Q5 SWITCH
REMOTE
IC2
Q7-11, 13, 14 SEGMENT DRIVER
Q1-6 MATRIX SWITCH
IC1 SEGMENT DRIVER
CTL COUNTER FRAME CODE INDICATOR
Q15-24 LED DRIVER
FUNCTION INDICATOR
S1-15 FUNCTION SWITCH
S18 AUDIO MONITOR SELECT
S16 SYSTEM SELECT
S17 INPUT SELECT
S1002 TIMER
KY-105H
VO-9600H

SECTION 13
SEMICONDUCTOR PIN ASSIGNMENTS

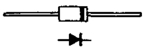
この章の図の中には互換性のないダイオード，トランジスタ，ICが併記されていることがあります。部品を交換するときには必ず部品表を参照してください。

等価回路はICメーカーのData Bookに従いました。

The chart in this section may sometimes show diodes, transistors, and ICs that are not interchangeable. When replacing a component, be sure to refer to the parts list. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

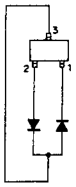
TYPE	PAGE
10E-2	13-2
1SS119TD	13-2
1SS123	13-2
1SS148	13-2
1SS97	13-2
1SS99	13-2
2SA1048	13-2
2SA1226	13-2
2SA768	13-2
2SB733	13-2
2SC1623	13-2
2SC1815	13-2
2SC1826	13-2
2SC2223	13-2
2SC2458	13-2
2SC2785	13-2
2SC2878	13-2
2SC3064	13-2
2SC3326N	13-2
2SD1111	13-2
2SD1682	13-2
2SD773	13-3
2SD774	13-3
2SD789	13-3
2SD894	13-3
2SD998	13-3
2SK105A	13-3
2SK523	13-3
2SK94	13-3
AN608P	13-4
BA401	13-4
BA7021	13-4
BX1140L	13-4
BX1248L	13-4
BX1257	13-4
BX1265L	13-4
BX373AL	13-4
BX388L	13-4
BX3915A	13-4
CX134A	13-5
CX187	13-5
CX194B	13-5
CX20061	13-6
CXL1009P	13-6
CXL5003P	13-6
CXL5005P	13-6
DS1230Y	13-7
DTA124EK	13-3
DTA124XS	13-3
DTA144ES	13-3
DTC124EK	13-3
DTC124ES	13-3
DTC124XS	13-3
DTC144ES	13-3
LA4550	13-7
LM1881N	13-7
M54517P	13-7
M54529AP	13-7
M54543L	13-8
MB88201	13-8
MB88525	13-8
MC10116L	13-9
MC10198L	13-9
MC14001BCP	13-10
MC14001UBCP	13-10
MC14011BCP	13-10
MC14013BCP	13-10
MC14042BCP	13-10
MC14053BCP	13-10
MC14069UBCP	13-10
MC14070BCP	13-11
MC14071BCP	13-11
MC14528BCP	13-11
MC14538BCP	13-11
MC14584BCP	13-11
RC2043DD	13-11
RC4558DD	13-11
RC4558S	13-12
RC4562DD	13-11
RC78L05A	13-12
RC78L09A	13-12
RD??EB?	13-2
RD??ESB?	13-2
RD??M	13-2
SN74HC244AN	13-12
TC4009UBP	13-12
TC4030BPHB	13-12
TC4081BP	13-12
TC40H000P	13-12
TLUG154	13-2
U05E	13-2
UPC324C	13-13
UPC339C	13-13
UPC358C	13-13
UPC393C	13-13
UPC4558C	13-11

DIODE, TRANSISTOR

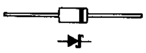


10E-2
1SS119TD
1SS148

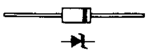
(SCALE 4/1)
TOP VIEW



1SS123

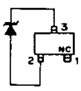


1SS97
1SS99

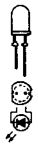


RD ? ?EB ?
RD ? ?ESB ?

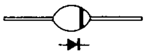
(SCALE 4/1)
TOP VIEW



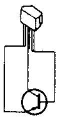
RD ? ?M



TLUG154 ; GREEN

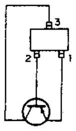


U05E

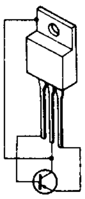


2SA1048

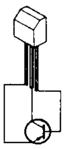
(SCALE 4/1)
TOP VIEW



2SA1226

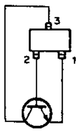


2SA768

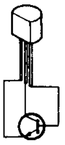


2SB733

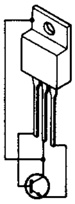
(SCALE 4/1)
TOP VIEW



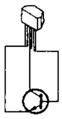
2SC1623
2SC2223
2SC3326N



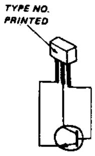
2SC1815
2SC2878



2SC1826



2SC2458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2SC2785

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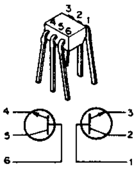
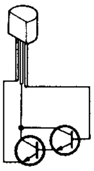
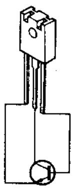


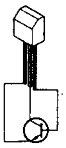
2SC3064



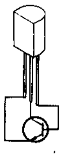
2SD1111



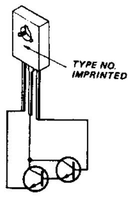
2SD1682



2SD773
2SD774



2SD789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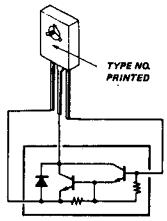
2SD894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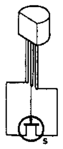
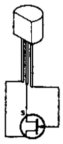
2SD998

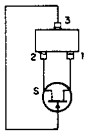


2SK105A



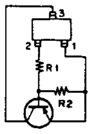
2SK523

TOP VIEW (SCALE 4/1)

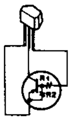


2SK94

TOP VIEW (SCALE 4/1)

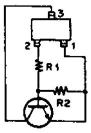


DTA124EK (R1 = 22K, R2 = 22K)

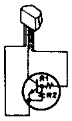


DTA124XS (R1 = 22K, R2 = 47K)
DTA144ES (R1 = 47K, R2 = 47K)

TOP VIEW (SCALE 4/1)



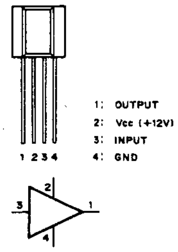
DTC124EK (R1 = 22K, R2 = 22K)



DTC124ES (R1 = 22K, R2 = 22K)
DTC124XS (R1 = 22K, R2 = 47K)
DTC144ES (R1 = 47K, R2 = 47K)

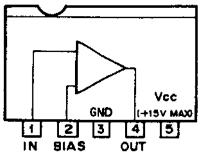
AN608P (MATSUSHITA)

WIDE BAND AMPLIFIER
- PRINTED SIDE VIEW -


1: OUTPUT
2: Vcc (+12V)
3: INPUT
4: GND
1 2 3 4
1
2
3
4

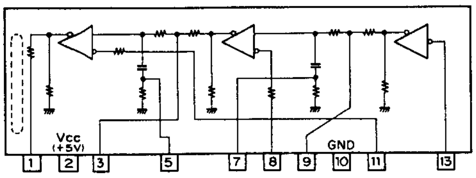
BA401 (ROHM)

RF AMPLIFIER
- SIDE VIEW -


GND
Vcc
(+15V MAX)
1
2
3
4
5
IN
BIAS
OUT

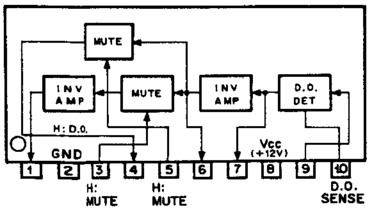
BX1140L (ROHM)

HF AMP
- REAR VIEW -


Vcc
(+5V)
GND
1
2
3
5
7
8
9
10
11
13

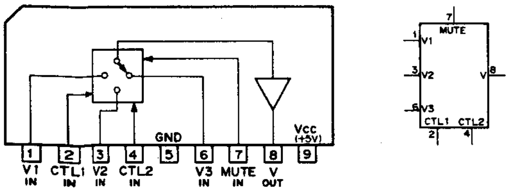
BX1248L (ROHM)

DROPOUT DETECTOR
- PRINTED SIDE VIEW -


MUTE
INV AMP
MUTE
INV AMP
D.O. DET
H: D.O.
GND
Vcc
(+12V)
1
2
3
4
5
6
7
8
9
10
H: MUTE
H: MUTE
D.O. SENSE

BA7021 (ROHM)

3-INPUT VIDEO SWITCH
- SIDE VIEW -

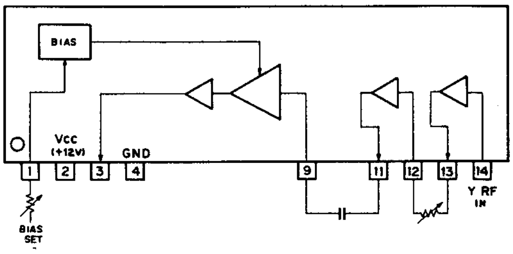

GND
Vcc
(+5V)
1
2
3
4
5
6
7
8
9
V1 IN
CTL1 IN
V2 IN
CTL2 IN
V3 IN
MUTE IN
V OUT
7
MUTE
1
V1
3
V2
V
8
6
V3
CTL1
CTL2
2
4

0 ; LOW LEVEL
1 ; HIGH LEVEL

CTL1	CTL2	V
1	0	V1
0	1	V2
0	0	V3

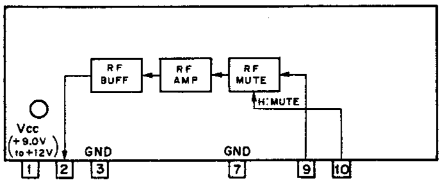
BX1257 (SONY)

Y-RF SIDE BAND EQUALIZER
- PRINTED SIDE VIEW -


BIAS
Vcc
(+12V)
GND
1
2
3
4
9
11
12
13
14
Y RF IN
BIAS SET

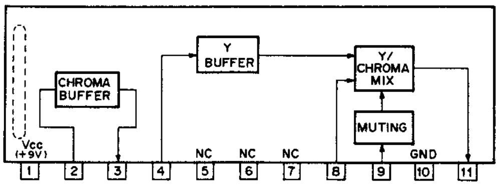
BX1265L (ROHM)

VIDEO HEAD AMPLIFIER/MUTING
- PRINTED SIDE VIEW -


RF BUFF
RF AMP
RF MUTE
H: MUTE
Vcc
(+9.0V to +12V)
GND
GND
1
2
3
7
9
10

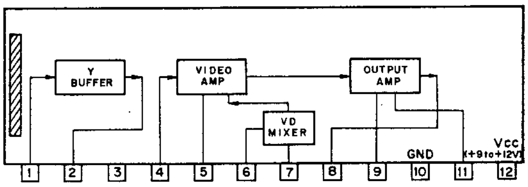
BX373AL (ROHM)

MIX AMP
- REAR VIEW -


Y BUFFER
CHROMA BUFFER
Y/ CHROMA MIX
MUTING
Vcc
(+9V)
NC
NC
NC
GND
1
2
3
4
5
6
7
8
9
10
11

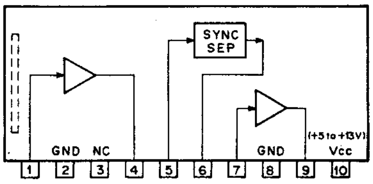
BX388L (ROHM)

VIDEO AMP/VD MIXER
- PRINTED SIDE -


Y BUFFER
VIDEO AMP
OUTPUT AMP
VD MIXER
GND
Vcc
(+9 to +12V)
1
2
3
4
5
6
7
8
9
10
11
12

BX3915A (SONY)

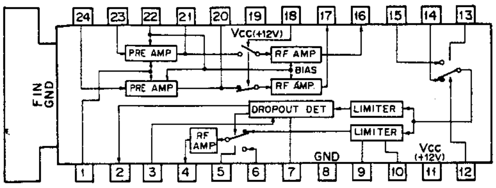
SYNC SEPARATOR
- REAR VIEW -


SYNC SEP
GND
NC
GND
(+5 to +13V)
Vcc
1
2
3
4
5
6
7
8
9
10

CX134A (SONY)

HEAD AMP/DROPOUT COMPENSATOR

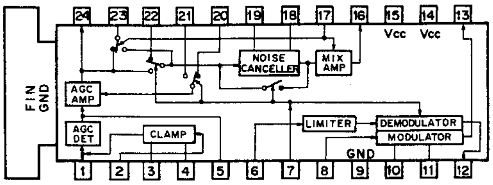
- TOP VIEW -


24
23
22
21
20
19
18
17
16
15
14
13
Vcc(+12V)
PRE AMP
RF AMP
BIAS
PRE AMP
RF AMP
FIN GND
DROPOUT DET
LIMITER
LIMITER
RF AMP
GND
Vcc (+12V)
1
2
3
4
5
6
7
8
9
10
11
12

CX187 (SONY)

LUMINANCE SIGNAL PROCESSER

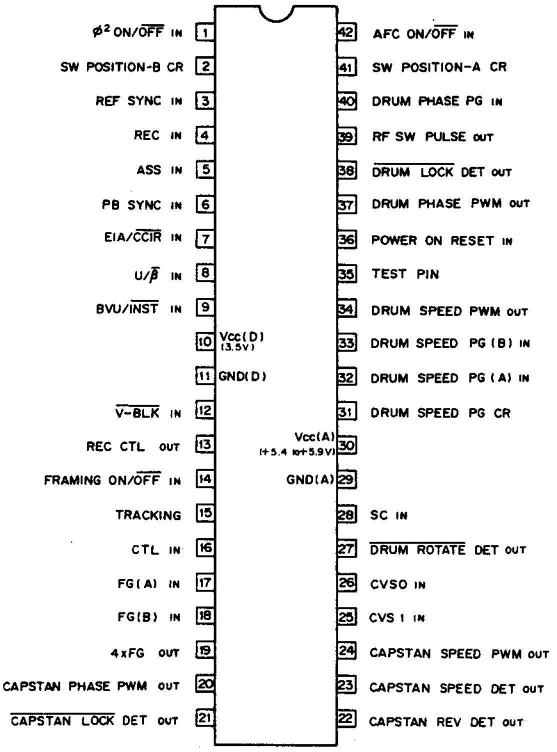
- TOP VIEW -

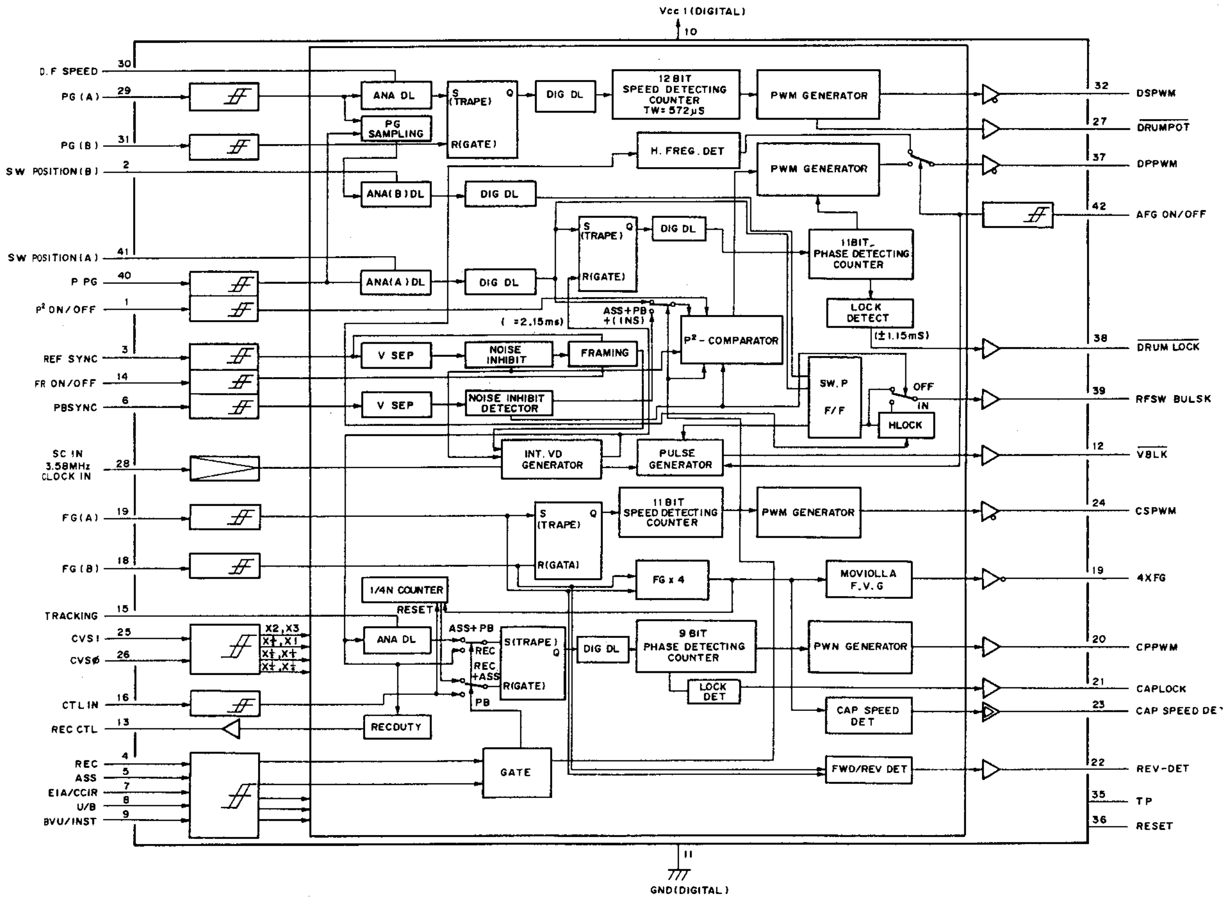

24
23
22
21
20
19
18
17
16
15
14
13
Vcc
Vcc
NOISE CANCELLER
MIX AMP
FIN GND
AGC AMP
AGC DET
CLAMP
LIMITER
DEMODULATOR
MODULATOR
GND
1
2
3
4
5
6
7
8
9
10
11
12

CX194B (SONY)

DRUM/CAPSTAN PWM SERVO

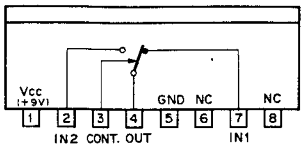
- TOP VIEW -

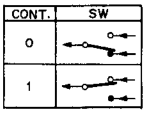

ϕ^2 ON/$\overline{\text{OFF}}$ IN 1
SW POSITION-B CR 2
REF SYNC IN 3
REC IN 4
ASS IN 5
PB SYNC IN 6
EIA/$\overline{\text{CCIR}}$ IN 7
U/$\overline{\beta}$ IN 8
BVU/$\overline{\text{INST}}$ IN 9
10 Vcc(D) (3.5V)
11 GND(D)
$\overline{\text{V-BLK}}$ IN 12
REC CTL OUT 13
FRAMING ON/$\overline{\text{OFF}}$ IN 14
TRACKING 15
CTL IN 16
FG(A) IN 17
FG(B) IN 18
4xFG OUT 19
CAPSTAN PHASE PWM OUT 20
$\overline{\text{CAPSTAN LOCK}}$ DET OUT 21
42 AFC ON/$\overline{\text{OFF}}$ IN
41 SW POSITION-A CR
40 DRUM PHASE PG IN
39 RF SW PULSE OUT
38 $\overline{\text{DRUM LOCK}}$ DET OUT
37 DRUM PHASE PWM OUT
36 POWER ON RESET IN
35 TEST PIN
34 DRUM SPEED PWM OUT
33 DRUM SPEED PG (B) IN
32 DRUM SPEED PG (A) IN
31 DRUM SPEED PG CR
Vcc(A) (+5.4 to +5.9V) 30
GND(A) 29
28 SC IN
27 $\overline{\text{DRUM ROTATE}}$ DET OUT
26 CVSO IN
25 CVS 1 IN
24 CAPSTAN SPEED PWM OUT
23 CAPSTAN SPEED DET OUT
22 CAPSTAN REV DET OUT


Vcc 1 (DIGITAL)
10
D.F SPEED 30
PG(A) 29
PG(B) 31
SW POSITION(B) 2
SW POSITION(A) 41
P PG 40
P^2 ON/OFF 1
REF SYNC 3
FR ON/OFF 14
PBSYNC 6
SC IN 3.58MHz CLOCK IN 28
FG(A) 19
FG(B) 18
TRACKING 15
CVS1 25
CVSϕ 26
CTL IN 16
REC CTL 13
REC 4
ASS 5
EIA/CCIR 7
U/B 8
BVU/INST 9
ANA DL
PG SAMPLING
S (TRAPE) Q
R(GATE)
DIG DL
12 BIT SPEED DETECTING COUNTER TW=572μS
PWM GENERATOR
H. FREQ. DET
PWM GENERATOR
ANA(B)DL
DIG DL
S (TRAPE) Q
R(GATE)
DIG DL
11BIT PHASE DETECTING COUNTER
LOCK DETECT
(±1.15mS)
ANA(A)DL
DIG DL
ASS+PB +(INS)
(≒2.15ms)
P^2-COMPARATOR
V SEP
NOISE INHIBIT
FRAMING
V SEP
NOISE INHIBIT DETECTOR
SW.P F/F
OFF
IN
HLOCK
INT. VD GENERATOR
PULSE GENERATOR
S (TRAPE) Q
R(GATA)
11 BIT SPEED DETECTING COUNTER
PWM GENERATOR
FG x 4
MOVIOLLA F.V.G
1/4N COUNTER
RESET
X2, X3
X½, X⅓
ANA DL
ASS+PB
REC
REC +ASS
PB
S(TRAPE) Q
R(GATE)
DIG DL
9 BIT PHASE DETECTING COUNTER
LOCK DET
PWN GENERATOR
CAP SPEED DET
RECOUTY
GATE
FWD/REV DET
32 DSPWM
27 $\overline{\text{DRUMPOT}}$
37 DPPWM
42 AFG ON/OFF
38 $\overline{\text{DRUM LOCK}}$
39 RFSW BULSK
12 $\overline{\text{VBLK}}$
24 CSPWM
19 4XFG
20 CPPWM
21 CAPLOCK
23 CAP SPEED DE
22 REV-DET
35 TP
36 RESET
11
GND(DIGITAL)

CX20061 (SONY)

ANALOG SWITCH
- SIDE VIEW -

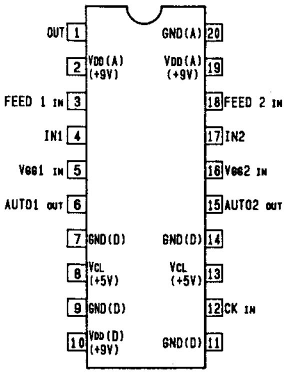

Vcc
(+9V)
GND
NC
NC
1
2
3
4
5
6
7
8
IN2
CONT.
OUT
IN1

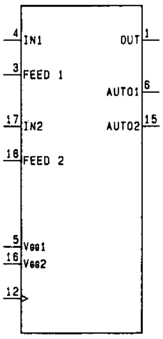


0; LOW LEVEL
1; HIGH LEVEL

CXL1009P (SONY)

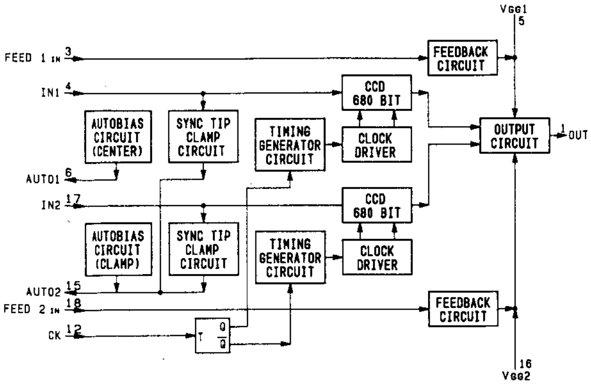
C-MOS CCD SIGNAL PROCESSOR FOR TBC
- TOP VIEW -


OUT 1
2 VDD(A) (+9V)
FEED 1 IN 3
IN1 4
VGG1 IN 5
AUTO1 OUT 6
7 GND(D)
8 VCL (+5V)
9 GND(D)
10 VDD(D) (+9V)
GND(D) 11
CK IN 12
VCL (+5V) 13
GND(D) 14
AUTO2 OUT 15
VGG2 IN 16
IN2 17
FEED 2 IN 18
VDD(A) (+9V) 19
GND(A) 20


4 IN1
3 FEED 1
17 IN2
18 FEED 2
5 VGG1
16 VGG2
12
OUT 1
AUTO1 6
AUTO2 15

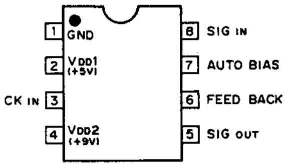
INPUT
CK :CLOCK INPUT
FEED 1 :FEED BACK INPUT1
FEED 2 :FEED BACK INPUT2
IN1 :SIGNAL INPUT1
IN2 :SIGNAL INPUT2
VGG 1 :GATE1
VGG 2 :GATE2

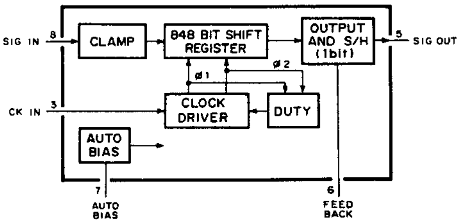
OUTPUT
OUT :OUTPUT
AUTO1 :AUTOBIAS1(CENTER)
AUTO2 :AUTOBIAS2(CLAMP)


VGG1
5
FEED 1 IN 3
IN1 4
FEEDBACK CIRCUIT
CCD 680 BIT
AUTOBIAS CIRCUIT (CENTER)
SYNC TIP CLAMP CIRCUIT
TIMING GENERATOR CIRCUIT
CLOCK DRIVER
OUTPUT CIRCUIT
1 OUT
AUTO1 6
IN2 17
CCD 680 BIT
AUTOBIAS CIRCUIT (CLAMP)
SYNC TIP CLAMP CIRCUIT
TIMING GENERATOR CIRCUIT
CLOCK DRIVER
AUTO2 15
FEED 2 IN 18
FEEDBACK CIRCUIT
CK 12
T
Q
Q̄
16
VGG2

CXL5003P (SONY)

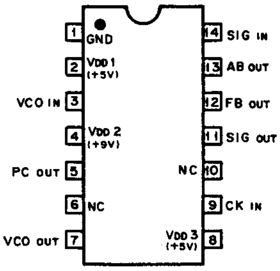
C-MOS CCD FOR PAL 1H DELAY LINE
- TOP VIEW -


1 GND
2 VDD1 (+5V)
CK IN 3
4 VDD2 (+9V)
8 SIG IN
7 AUTO BIAS
6 FEED BACK
5 SIG OUT

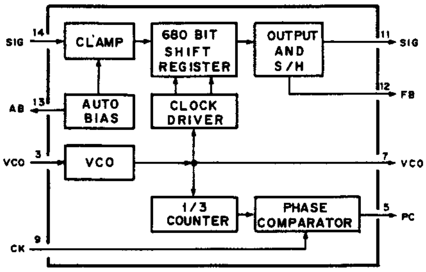

SIG IN 8
CLAMP
848 BIT SHIFT REGISTER
OUTPUT AND S/H (1bit)
5 SIG OUT
ø1
ø2
CK IN 3
CLOCK DRIVER
DUTY
AUTO BIAS
7 AUTO BIAS
6 FEED BACK

CXL5005P (SONY)

C-MOS CCD 1H DELAY LINE FOR NTSC
- TOP VIEW -

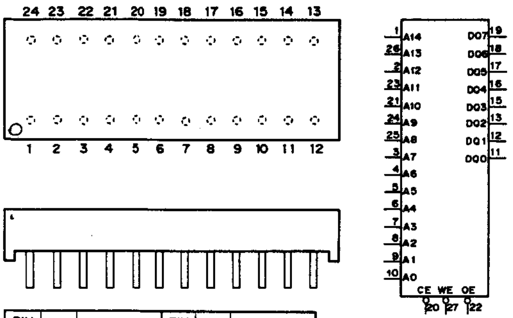

1 GND
2 VDD1 (+5V)
VCO IN 3
4 VDD2 (+9V)
PC OUT 5
6 NC
VCO OUT 7
14 SIG IN
13 AB OUT
12 FB OUT
11 SIG OUT
NC 10
9 CK IN
VDD3 (+5V) 8

AB ; AUTO BIAS DC
FB ; FEEDBACK DC
PC ; PHASE COMPARATOR
SIG ; SIGNAL


SIG 14
CLAMP
680 BIT SHIFT REGISTER
OUTPUT AND S/H
11 SIG
12 FB
AB 13
AUTO BIAS
CLOCK DRIVER
VCO 3
VCO
7 VCO
1/3 COUNTER
PHASE COMPARATOR
5 PC
CK 9

DS1230Y (DALLAS)

C-MOS 256K (32,768x8)-BIT NONVOLATILE S-RAM
- TOP/SIDE VIEW -

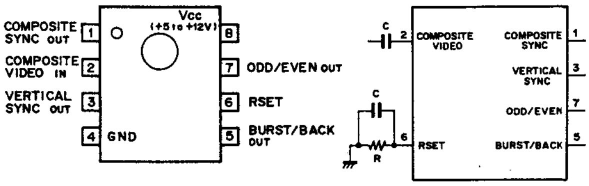

24 23 22 21 20 19 18 17 16 15 14 13
1 2 3 4 5 6 7 8 9 10 11 12
A14
A13
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
A2
A1
A0
DQ7
DQ6
DQ5
DQ4
DQ3
DQ2
DQ1
DQ0
CE WE OE
20 27 22

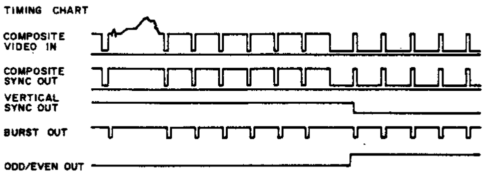
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	A14	15	I/O	DQ3
2	I	A12	16	I/O	DQ4
3	I	A7	17	I/O	DQ5
4	I	A6	18	I/O	DQ6
5	I	A5	19	I/O	DQ7
6	I	A4	20	I/O	$\overline{CE}$
7	I	A3	21	I	A10
8	I	A2	22	I/O	$\overline{OE}$
9	I	A1	23	I	A11
10	I	A0	24	I	A9
11	I/O	DQ0	25	I	A8
12	I/O	DQ1	26	I	A13
13	I/O	DQ2	27	I/O	$\overline{WE}$
14	–	GND	28	–	VDD (+5V)

A0 – A14 ; ADDRESS INPUTS
$\overline{CE}$; CHIP ENABLE
DQ0 – DQ7 ; DATA INPUT/OUTPUT
$\overline{OE}$; OUTPUT ENABLE
$\overline{WE}$; WRITE ENABLE

LM1881N (NS)

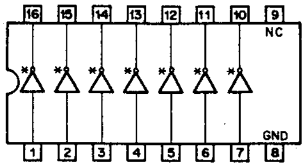
VIDEO SYNC SEPARATOR
- TOP VIEW -


COMPOSITE SYNC OUT 1
COMPOSITE VIDEO IN 2
VERTICAL SYNC OUT 3
4 GND
Vcc (+5 to +12V) 8
7 ODD/EVEN OUT
6 RSET
5 BURST/BACK OUT
C
2 COMPOSITE VIDEO
COMPOSITE SYNC 1
VERTICAL SYNC 3
ODD/EVEN 7
C
R
6 RSET
BURST/BACK 5



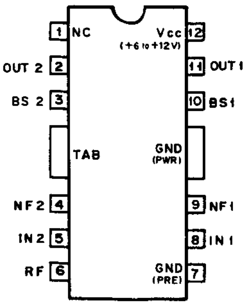
M54517P (MITSUBISHI)

INVERTER WITH OPEN-COLLECTOR
(DARLINGTON-CONNECTED TRANSISTOR ARRAY)
- TOP VIEW -

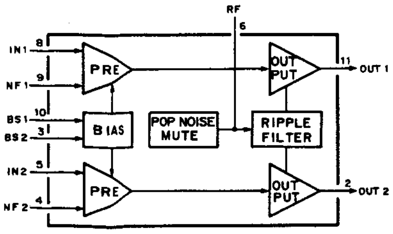

16 15 14 13 12 11 10 9
NC
GND
1 2 3 4 5 6 7 8

LA4550 (SANYO)

2CH AF POWER AMP
- TOP VIEW -

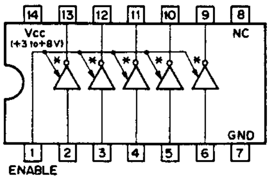

1 NC
OUT 2 2
BS 2 3
TAB
NF2 4
IN2 5
RF 6
Vcc (+6 to +12V) 12
11 OUT 1
10 BS1
GND (PWR)
9 NF1
8 IN1
GND (PRE) 7

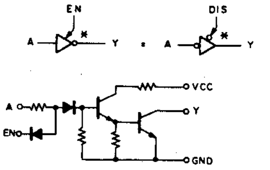
BS1,BS2 ; BOOTSTRAP CAPACITOR
IN1,IN2 ; INPUTS
NF1,NF2 ; NEGATIVE FEEDBACK CONTROL
OUT1,OUT2 ; OUTPUTS
RF ; RIPPLE FILTER


RF
6
IN1 8
NF1 9
BS1 10
BS2 3
IN2 5
NF2 4
PRE
BIAS
POP NOISE MUTE
RIPPLE FILTER
PRE
OUT PUT
OUT PUT
11 OUT 1
2 OUT 2

M54529AP (MITSUBISHI)

TRANSISTOR ARRAY
- TOP VIEW -


14 13 12 11 10 9 8
Vcc (+3 to +8V)
NC
GND
1 2 3 4 5 6 7
ENABLE

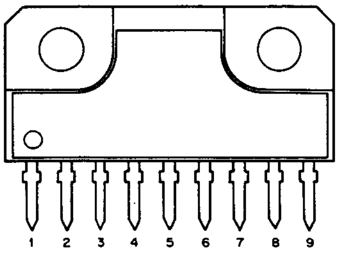

EN
A
Y
DIS
A
Y
A
EN
VCC
Y
GND

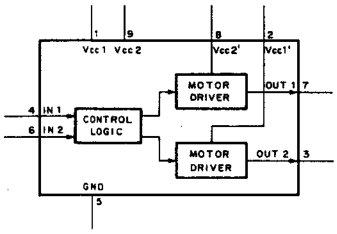
A	EN	Y
0	1	1
1	1	0
X	0	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
✱ ; OPEN COLLECTOR

M54543L (MITSUBISHI)

BI-DIRECTIONAL MOTOR DRIVER
- SIDE VIEW -



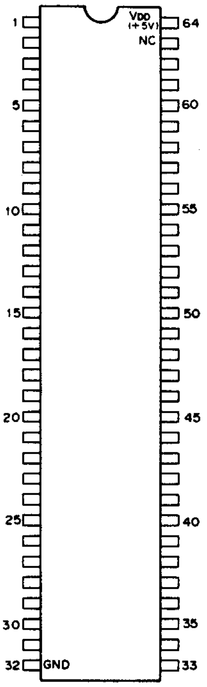

1
9
8
2
Vcc1
Vcc2
Vcc2'
Vcc1'
MOTOR DRIVER
OUT 1
7
4
IN 1
CONTROL LOGIC
6
IN 2
MOTOR DRIVER
OUT 2
3
GND
5

IN 1	IN 2	OUT 1	OUT 2	MODE
0	0	Z	Z	NO OPERATION
1	0	1	0	ROTATION
0	1	0	1	REVERSE ROTATION
1	1	0	0	BRAKE

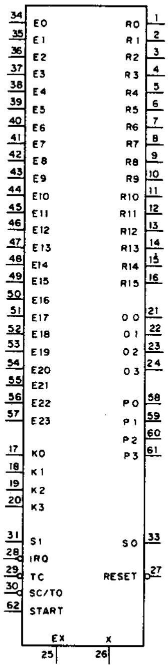
0 : LOW LEVEL
1 : HIGH LEVEL
Z : HIGH IMPEDANCE

MB88525 (FUJITSU)

C-MOS 4-BIT ONE-CHIP MICROCOMPUTER WITH MULTI I/O
- TOP VIEW -


1
5
10
15
20
25
30
32
GND
VDD (+5V)
NC
64
60
55
50
45
40
35
33

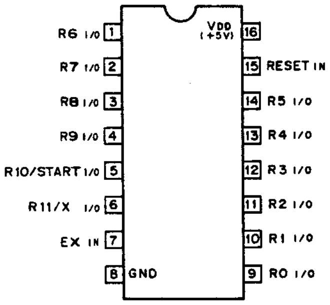
PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL
1	○	○	R0	33		○	S0
2	○	○	R1	34	○	○	E0
3	○	○	R2	35	○	○	E1
4	○	○	R3	36	○	○	E2
5	○	○	R4	37	○	○	E3
6	○	○	R5	38	○	○	E4
7	○	○	R6	39	○	○	E5
8	○	○	R7	40	○	○	E6
9	○	○	R8	41	○	○	E7
10	○	○	R9	42	○	○	E8
11	○	○	R10	43	○	○	E9
12	○	○	R11	44	○	○	E10
13	○	○	R12	45	○	○	E11
14	○	○	R13	46	○	○	E12
15	○	○	R14	47	○	○	E13
16	○	○	R15	48	○	○	E14
17	○		K0	49	○	○	E15
18	○		K1	50	○	○	E16
19	○		K2	51	○	○	E17
20	○		K3	52	○	○	E18
21		○	O0	53	○	○	E19
22		○	O1	54	○	○	E20
23		○	O2	55	○	○	E21
24		○	O3	56	○	○	E22
25	○		EX	57	○	○	E23
26		○	X	58		○	P0
27	○	○	$\overline{\text{RESET}}$	59		○	P1
28	○		$\overline{\text{IRQ}}$	60		○	P2
29	○		$\overline{\text{TC}}$	61		○	P3
30	○	○	$\overline{\text{SC}}/\overline{\text{TO}}$	62	○		START
31	○		SI	63	—	—	——
32			GND	64			VDD

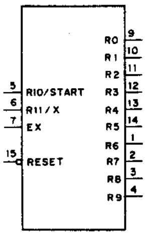

34 E0
35 E1
36 E2
37 E3
38 E4
39 E5
40 E6
41 E7
42 E8
43 E9
44 E10
45 E11
46 E12
47 E13
48 E14
49 E15
50 E16
51 E17
52 E18
53 E19
54 E20
55 E21
56 E22
57 E23
17 K0
18 K1
19 K2
20 K3
31 SI
28 IRQ
29 TC
30 SC/TO
62 START
R0 1
R1 2
R2 3
R3 4
R4 5
R5 6
R6 7
R7 8
R8 9
R9 10
R10 11
R11 12
R12 13
R13 14
R14 15
R15 16
O0 21
O1 22
O2 23
O3 24
P0 58
P1 59
P2 60
P3 61
SO 33
RESET 27
EX 25
X 26

E0-E23 ; I/O PORT (E) IN/OUT
EX ; EXTERNAL CLOCK IN
$\overline{\text{IRQ}}$; EXTERNAL INTERRUPT REQUEST IN
K0-K3 ; INPUT PORT (K) IN
O0-O3 ; OUTPUT PORT (O) OUT
P0-P3 ; OUTPUT PORT (P) OUT
R0-R15 ; I/O PORT (R) IN/OUT
$\overline{\text{RESET}}$; RESET IN
$\overline{\text{SC}}/\overline{\text{TO}}$; SHIFT CLOCK IN/TIMING OUT
SI ; SERIAL DATA IN
START ; STANDBY RELEASE IN
SO ; SERIAL DATA OUT
$\overline{\text{TC}}$; EXTERNAL CLOCK IN
X ; CLOCK OUT

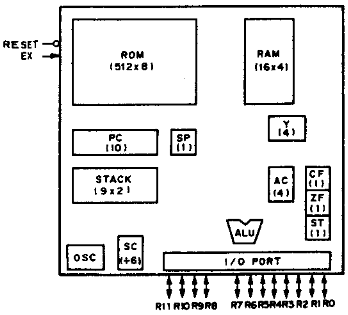
MB88201 (FUJITSU)

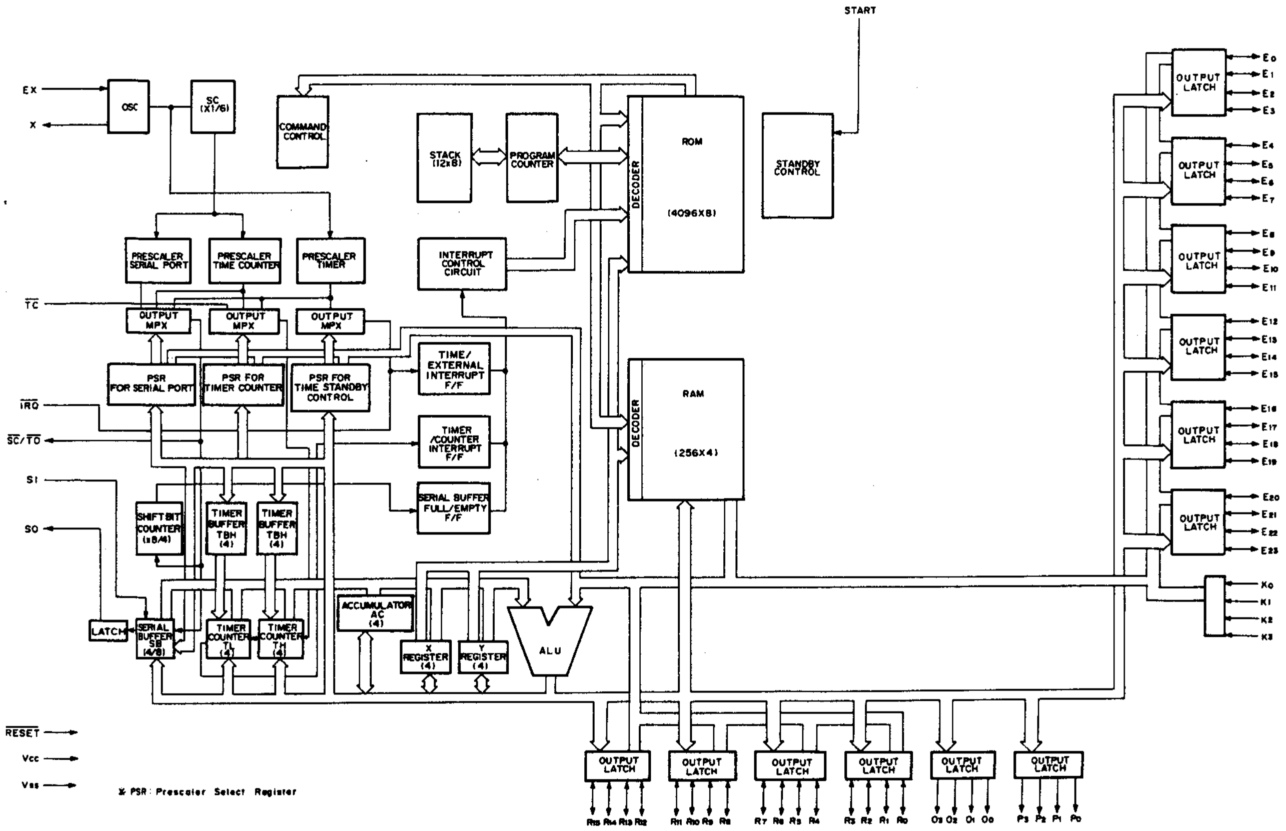
C-MOS 4-BIT MICROCOMPUTER
- TOP VIEW -


R6 I/O 1
R7 I/O 2
R8 I/O 3
R9 I/O 4
R10/START I/O 5
R11/X I/O 6
EX IN 7
8 GND
VDD (+5V) 16
15 RESET IN
14 R5 I/O
13 R4 I/O
12 R3 I/O
11 R2 I/O
10 R1 I/O
9 R0 I/O


5 R10/START
6 R11/X
7 EX
15 RESET
R0 9
R1 10
R2 11
R3 12
R4 13
R5 14
R6 1
R7 2
R8 3
R9 4

EX ; EXTERNAL X'TAL IN
R0-R11 ; I/O PORT (R) IN/OUT
RESET ; RESET IN
START ; STANDBY RELEASE IN
R11/X ; EXT CLOCK IN/INT CLOCK OUT

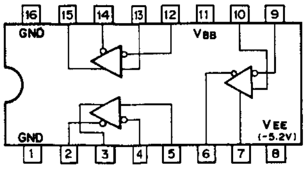

RESET
EX
ROM (512x8)
RAM (16x4)
PC (10)
SP (1)
Y (4)
STACK (9x2)
AC (4)
CF (1)
ZF (1)
ST (1)
ALU
OSC
SC (+6)
I/O PORT
R11 R10 R9 R8
R7 R6 R5 R4 R3 R2 R1 R0


START
EX
X
OSC
SC (X1/6)
COMMAND CONTROL
STACK (12x8)
PROGRAM COUNTER
DECODER
ROM (4096X8)
STANDBY CONTROL
PRESCALER SERIAL PORT
PRESCALER TIME COUNTER
PRESCALER TIMER
INTERRUPT CONTROL CIRCUIT
TC
OUTPUT MPX
OUTPUT MPX
OUTPUT MPX
PSR FOR SERIAL PORT
PSR FOR TIMER COUNTER
PSR FOR TIME STANDBY CONTROL
TIME/ EXTERNAL INTERRUPT F/F
IRQ
SC/TO
TIMER /COUNTER INTERRUPT F/F
DECODER
RAM (256X4)
SI
SO
SHIFT BIT COUNTER (x8/4)
TIMER BUFFER TBH (4)
TIMER BUFFER TBH (4)
SERIAL BUFFER FULL/EMPTY F/F
LATCH
SERIAL BUFFER SB (4/8)
TIMER COUNTER TL (4)
TIMER COUNTER TH (4)
ACCUMULATOR AC (4)
X REGISTER (4)
Y REGISTER (4)
ALU
OUTPUT LATCH
E0
E1
E2
E3
E4
E5
E6
E7
E8
E9
E10
E11
E12
E13
E14
E15
E16
E17
E18
E19
E20
E21
E22
E23
K0
K1
K2
K3
RESET
Vcc
Vss
R15 R14 R13 R12
R11 R10 R9 R8
R7 R6 R5 R4
R3 R2 R1 R0
O3 O2 O1 O0
P3 P2 P1 P0

※ PSR: Prescaler Select Register

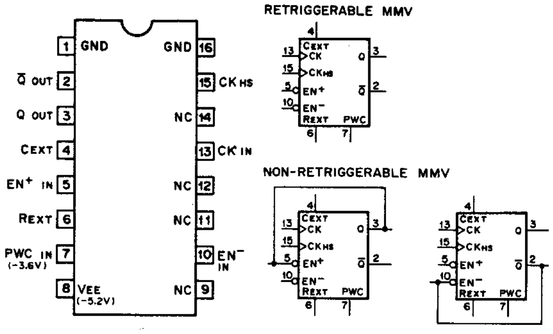
MC10116L (MOTOROLA)

ECL TRIPLE DIFFERENTIAL OR/NOR LINE RECEIVERS
- TOP VIEW -


16
15
14
13
12
11
10
9
GND
VBB
GND
VEE (-5.2V)
1
2
3
4
5
6
7
8

MC10198L (MOTOROLA)

ECL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
- TOP VIEW -


RETRIGGERABLE MMV
NON-RETRIGGERABLE MMV
1 GND
GND 16
Q̄ OUT 2
15 CKHS
Q OUT 3
NC 14
CEXT 4
13 CK IN
EN+ IN 5
NC 12
REXT 6
NC 11
PWC IN 7 (-3.6V)
10 EN− IN
8 VEE (-5.2V)
NC 9
CEXT
CK
CKHS
EN+
EN−
REXT
PWC
Q
Q̄
4
13
15
5
10
6
7
3
2

CK : CLOCK TRIGGER INPUT
CK_{HS}: HIGH-SPEED CLOCK TRIGGER INPUT
EN^{+} : TRIGGER POSITIVE ENABLE
EN^{-} : TRIGGER NEGATIVE ENABLE
PWC : EXTERNAL PULSE WIDTH CONTROL

FUNCTION TABLE

EN^{+}	EN^{-}	TRIG. SLOPE
0	0	↑↓
0	1	↑
1	0	↓
1	1	DISABLE

0; LOW LEVEL
1; HIGH LEVEL

OUTPUT PULSE WIDTH : PWQ

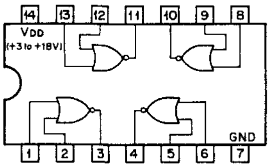
$$PWQ = 1.19 \cdot C_{EXT} (R_{EXT} + 284)$$

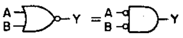
WHERE
PWQ = SEC
C_{EXT} = FARADS
R_{EXT} = OHMS
V_{EE} = −5.2V
PWC = −3.6V

NOTE ; · SELECT R_{EXT} RANGING FROM ZERO TO 16K OHMS.
· SELECT C_{EXT} GREATER THAN 20PF.

MC14001BCP (MOTOROLA)
MC14001UBCP (MOTOROLA)

C-MOS 2-INPUT NOR GATE
– TOP VIEW –


14
13
12
11
10
9
8
VDD
(+3 to +18V)
GND
1
2
3
4
5
6
7



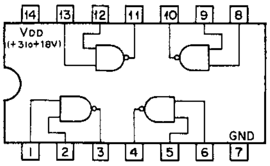
$Y = \overline{A+B} = \overline{A}\cdot\overline{B}$

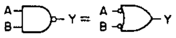
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

MC14011BCP (MOTOROLA)

C-MOS 2-INPUT NAND GATE
– TOP VIEW –


14
13
12
11
10
9
8
VDD
(+3 to +18V)
GND
1
2
3
4
5
6
7



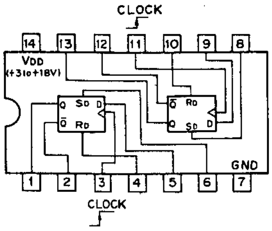
$Y = \overline{A\cdot B} = \overline{A}+\overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0:LOW LEVEL
1:HIGH LEVEL

MC14013BCP (MOTOROLA)

C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET
– TOP VIEW –


CLOCK
14
13
12
11
10
9
8
VDD
(+3 to +18V)
Q
SD
D
$\overline{Q}$
RD
$\overline{Q}$
RD
Q
SD
D
GND
1
2
3
4
5
6
7
CLOCK

DIRECT R-S FLIP-FLOP

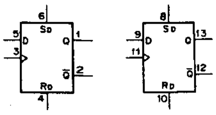
SD	RD	Q	$\overline{Q}$
0	0	Qn	$\overline{Qn}$
0	1	0	1
1	0	1	0
1	1	1	1

D-TYPE FLIP-FLOP

CKn	CKn+1
D	Q
0	0
1	1

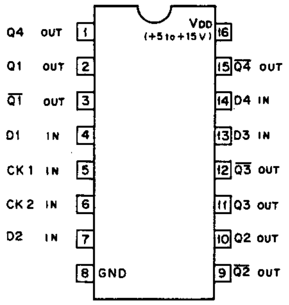
0:LOW LEVEL
1:HIGH LEVEL

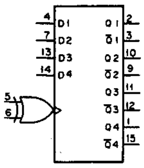
CLOCK CK;_/‾
CKn; BEFORE CLOCK
CKn+1; AFTER CLOCK


6
SD
5
D
3
Q
1
$\overline{Q}$
2
RD
4
8
SD
9
D
11
Q
13
$\overline{Q}$
12
RD
10

MC14042BCP (MOTOROLA)

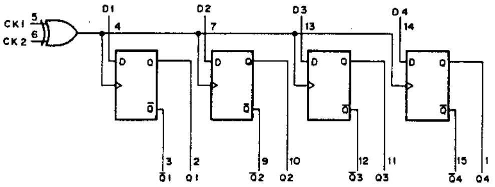
C-MOS D-TYPE LATCH
– TOP VIEW –


Q4 OUT 1
Q1 OUT 2
$\overline{Q1}$ OUT 3
D1 IN 4
CK1 IN 5
CK2 IN 6
D2 IN 7
8 GND
VDD
(+5 to +15 V)
16
15 $\overline{Q4}$ OUT
14 D4 IN
13 D3 IN
12 $\overline{Q3}$ OUT
11 Q3 OUT
10 Q2 OUT
9 $\overline{Q2}$ OUT


4 D1
7 D2
13 D3
14 D4
Q1 2
$\overline{Q1}$ 3
Q2 10
$\overline{Q2}$ 9
Q3 11
$\overline{Q3}$ 12
Q4 1
$\overline{Q4}$ 15
5
6

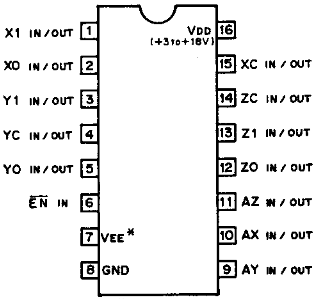
FUNCTION TABLE

CK1	CK2	Q / $\overline{Q}$
0	0	PASS DATA
0	1	LATCH DATA
1	0	LATCH DATA
1	1	PASS DATA

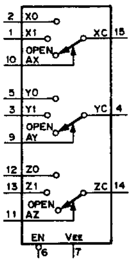

CK1
CK2
5
6
D1
4
D2
7
D3
13
D4
14
D
Q
$\overline{Q}$
3
2
$\overline{Q1}$
Q1
9
10
$\overline{Q2}$
Q2
12
11
$\overline{Q3}$
Q3
15
1
$\overline{Q4}$
Q4

MC14053BCP (MOTOROLA)

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS
– TOP VIEW –


X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
$\overline{EN}$ IN 6
7 VEE*
8 GND
VDD
(+3 to +18V)
16
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT

VEE*; VDD−VEE = +3 to +18 V

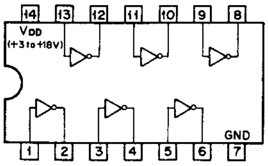

2 X0
1 X1
XC 15
OPEN
10 AX
5 Y0
3 Y1
YC 4
OPEN
9 AY
12 Z0
13 Z1
ZC 14
OPEN
11 AZ
EN
VEE
6
7

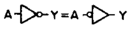
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

MC14069UBCP (MOTOROLA)

C-MOS INVERTER
– TOP VIEW –


14
13
12
11
10
9
8
VDD
(+3 to +18V)
GND
1
2
3
4
5
6
7



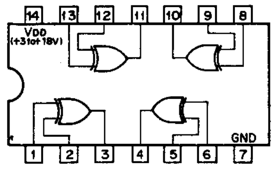
$Y = \overline{A}$

A	Y
0	1
1	0

0; LOW LEVEL
1; HIGH LEVEL

MC14070BCP (MOTOROLA)

C-MOS QUAD EXCLUSIVE OR GATES
- TOP VIEW -


14
13
12
11
10
9
8
VDD
(+3to+18V)
GND
1
2
3
4
5
6
7

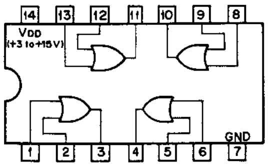
$Y = \overline{A} \cdot B + A \cdot \overline{B}$

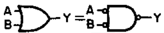
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

MC14071BCP (MOTOROLA)

C-MOS 2-INPUT OR GATE
- TOP VIEW -


14
13
12
11
10
9
8
VDD
(+3 to+15V)
GND
1
2
3
4
5
6
7



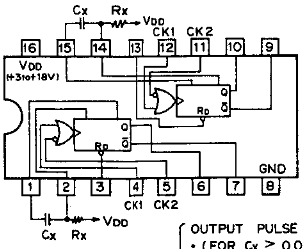
$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0; LOW LEVEL
1; HIGH LEVEL

MC14528BCP (MOTOROLA)

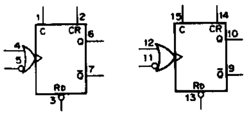
C-MOS RETRIGGERABLE/RESETTABLE MMV
- TOP VIEW -


Cx
Rx
VDD
CK1
CK2
16
15
14
13
12
11
10
9
VDD
(+3to+18V)
Q
RD
Q̄
GND
1
2
3
4
5
6
7
8
CK1
CK2
VDD
Cx
Rx

INPUTS			OUTPUTS	
CK1	CK2	RD	Q	Q̄
↑	1	1	⊓	⊔
↑	0	1	Q	Q̄
1	↓	1	Q	Q̄
0	↓	1	⊓	⊔
X	X	0	0	1

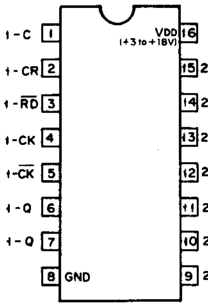
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

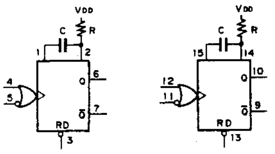
OUTPUT PULSE WIDTH Q OR $\overline{Q}$
- (FOR Cx ≧ 0.01μF USE FORMULA)
  PW = 0.2 · Rx · Cx · ℓn (VDD − GND)
- (FOR Cx < 0.01μF USE DATA BOOK.)


1
2
C
CR
6
Q
4
5
Q̄
7
RD
3
15
14
C
CR
10
Q
12
11
Q̄
9
RD
13

MC14538BCP (MOTOROLA)

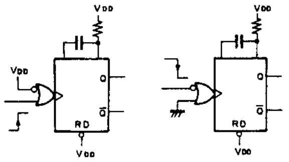
C-MOS DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATORS
- TOP VIEW -


1-C 1
1-CR 2
1-R̄D 3
1-CK 4
1-C̄K̄ 5
1-Q 6
1-Q 7
8 GND
VDD 16
(+3 to +18V)
15 2-C
14 2-CR
13 2-R̄D
12 2-CK
11 2-C̄K̄
10 2-Q
9 2-Q̄

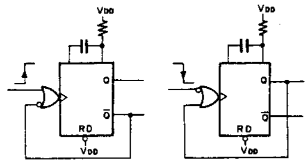

VDD
C
R
1
2
4
5
6
Q
Q̄
7
RD
3
VDD
C
R
15
14
12
11
10
Q
Q̄
9
RD
13

OUTPUT PULSE WIDTH = C·R

RETRIGGERABLE M.M.V

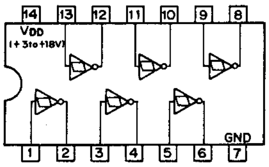

VDD
VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

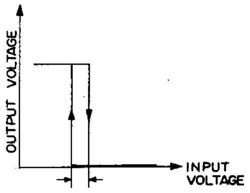
NON-RETRIGGERABLE M.M.V


VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

MC14584BCP (MOTOROLA)

C-MOS SCHMITT TRIGGER INVERTER
- TOP VIEW -

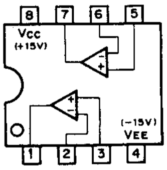

14
13
12
11
10
9
8
VDD
(+3to+18V)
GND
1
2
3
4
5
6
7



0.4V (VDD=5V)
0.45V(VDD=10V)
0.90V(VDD=15V)

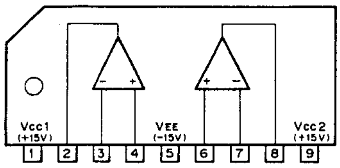
RC2043DD (RAYTHEON)
RC4558DD (RAYTHEON)
RC4562DD (RAYTHEON)
UPC4558C (NEC)

DUAL OPERATIONAL AMPLIFIER
- TOP VIEW -


8
7
6
5
Vcc
(+15V)
-
+
+
-
(-15V)
VEE
1
2
3
4

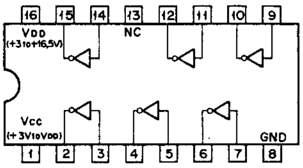
RC4558S (RAYTHEON)

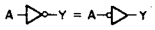
HIGH PERFORMANCE DUAL OPERATIONAL AMPLIFIER
- SIDE VIEW -


Vcc1
(+15V)
VEE
(-15V)
Vcc2
(+15V)
1
2
3
4
5
6
7
8
9

TC4009UBP (TOSHIBA)

C-MOS INVERTING TYPE BUFFER/CONVERTER (TO TTL LEVEL)
- TOP VIEW -

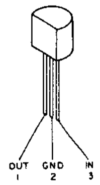

16
15
14
13
12
11
10
9
VDD
(+3 to +16.5V)
NC
Vcc
(+3V to VDD)
GND
1
2
3
4
5
6
7
8

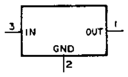


A	Y
0	1
1	0

RC78L05A (RAYTHEON) + 5V (100mA)
RC78L09A (RAYTHEON) + 9V (100mA)

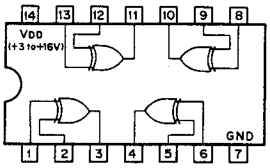
POSITIVE VOLTAGE REGULATOR

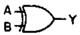

OUT
1
GND
2
IN
3


3
IN
OUT
1
GND
2

TC4030BPHB (TOSHIBA)

C-MOS EXCLUSIVE OR GATE
- TOP VIEW -


14
13
12
11
10
9
8
VDD
(+3 to +16V)
GND
1
2
3
4
5
6
7



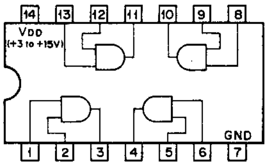
$Y=\bar{A}\cdot B+A\cdot\bar{B}$

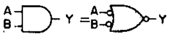
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0:LOW LEVEL
1:HIGH LEVEL

TC4081BP (TOSHIBA)

C-MOS 2-INPUT AND GATE
- TOP VIEW -


14
13
12
11
10
9
8
VDD
(+3 to +15V)
GND
1
2
3
4
5
6
7



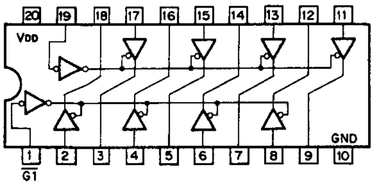
$Y=A\cdot B=\overline{\bar{A}+\bar{B}}$

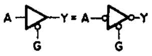
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0:LOW LEVEL
1:HIGH LEVEL

SN74HC244AN (TI)

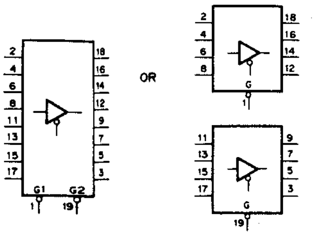
C-MOS BUS BUFFER WITH 3-STATE OUTPUTS
- TOP VIEW -


20
19
18
17
16
15
14
13
12
11
VDD
GND
1
2
3
4
5
6
7
8
9
10
$\overline{G1}$



G	A	Y
0	0	0
0	1	1
1	X	HI-Z

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z; HIGH IMPEDANCE

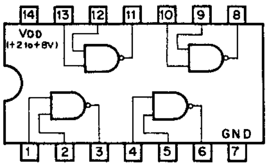

2
4
6
8
11
13
15
17
18
16
14
12
9
7
5
3
G1
G2
1
19
OR
2
4
6
8
18
16
14
12
G
1
11
13
15
17
9
7
5
3
G
19

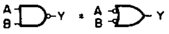
NOTE :

TYPE	VDD
AC HC 40H	+2 to +6V
ACT HCT	+5V

TC40H000P (TOSHIBA)

C-MOS 2-INPUT NAND GATE
- TOP VIEW -


14
13
12
11
10
9
8
VDD
(+2 to +8V)
GND
1
2
3
4
5
6
7

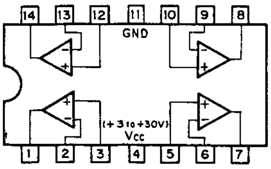


$Y=\overline{A\cdot B}=\bar{A}+\bar{B}$

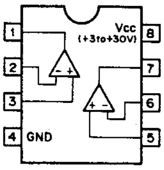
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

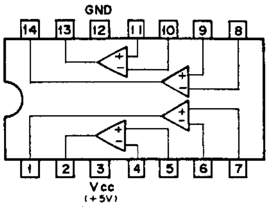
UPC324C (NEC)
QUAD OPERATIOAL AMPLIFIERS
- TOP VIEW -


14
13
12
11
10
9
8
GND
(+3 to +30V)
Vcc
1
2
3
4
5
6
7

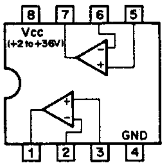
UPC358C (NEC)
DUAL OPERATIONAL AMPLIFIERS
- TOP VIEW -


1
2
3
4
GND
Vcc
(+3to+30V)
8
7
6
5

UPC339C (NEC)
QUAD COMPARATORS
- TOP VIEW -


GND
14
13
12
11
10
9
8
1
2
3
4
5
6
7
Vcc
(+5V)

UPC393C (NEC)
DUAL VOLTAGE COMPARATORS
- TOP VIEW -


8
7
6
5
Vcc
(+2to+36V)
GND
1
2
3
4

SECTION 14
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

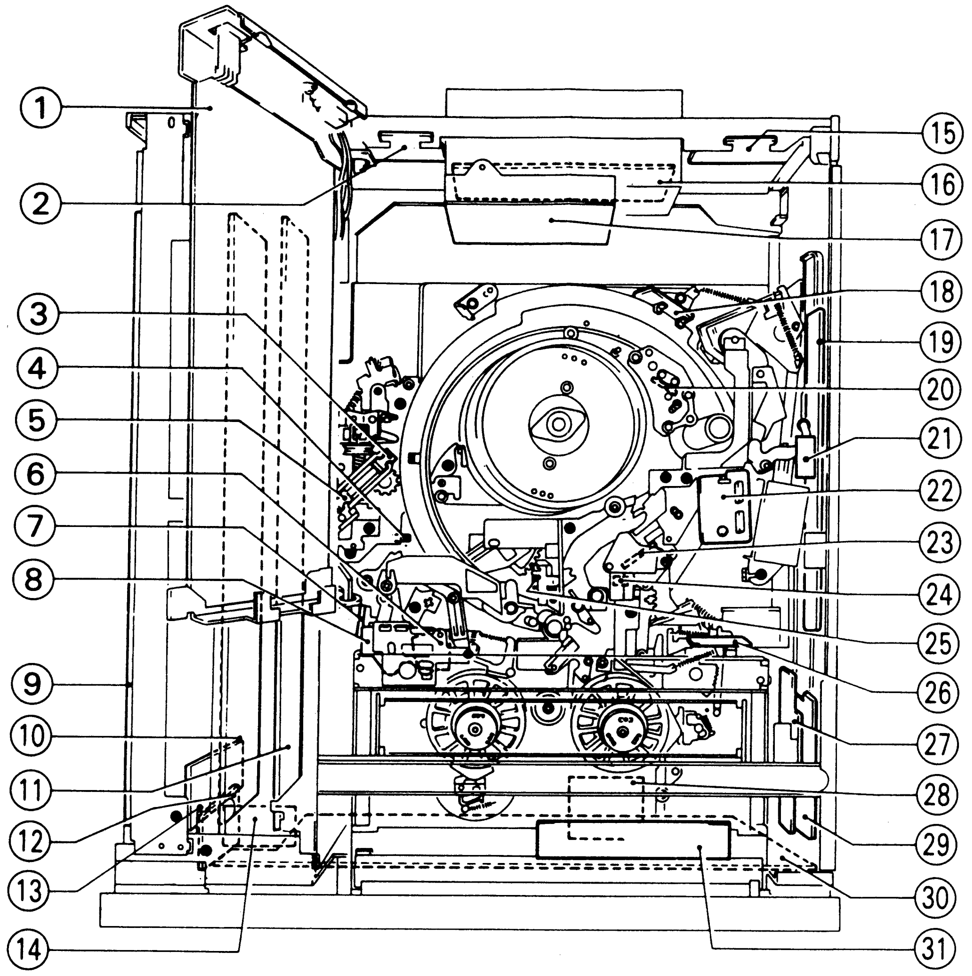
CIRCUIT FUNCTION OF THE PRINTED CIRCUIT BOARD

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	DUS-506	PB WHITE CLIP
	RP-36A	PB Amplifier
	VO-39	Y REC/PB
	VL-5	EE LEVEL
AUDIO	AU-82B	PB Amplifier
	DUS-92	Audio CTL Head
	DUS-147	Audio CTL Head
	DUS-408	Audio REC Level
	HP-30	Headphones
	MC-28	MIC IN
SERVO	EC-28	CTL Head
	DUS-92	Audio CTL Head
	DUS-147	Audio CTL Head
	PT-9	Reel Motor Driver
	SV-93H	Servo System
POWER	AC-125	AC Input (J/UC)
	AC-126	AC Input (EK)
	DC-31	DC Supply (J/UC)
	DC-31A	DC Supply (EK)
	UR-14	Switching Regulator (J/UC)
	UR-14E	Switching Regulator (EK)
KEY	KY-105H	Function Key/Display
SYSCON	IF-132	33P Interface
	PD-40	Plunger Solenoids
	PD-41	Plunger Solenoids
	PH-5	Tape Beginning/End Sensor
	SY-174	System Control
OTHERS	CC-36	Junction Board for CC-37 and LP-41
	CC-37	Cassette In Detector
	CN-596	Voltage Selector
	LM-13	Threading Motor
	LP-41	Cassette Compartment Light
	PTC-30	SP, Miss REC. KCA Detector
	PTC-33	FR Stop Detector
	PTC-34	Unthreadent Detector
	PTC-35	S/T Reel Rotation Detector
	RM-39	Reel Motor
	SE-46	Tension Regulator Detector
	TG-22	Tension Regulator LED

LOCATION OF THE PRINTED CIRCUIT BOARD

[TOP VIEW]

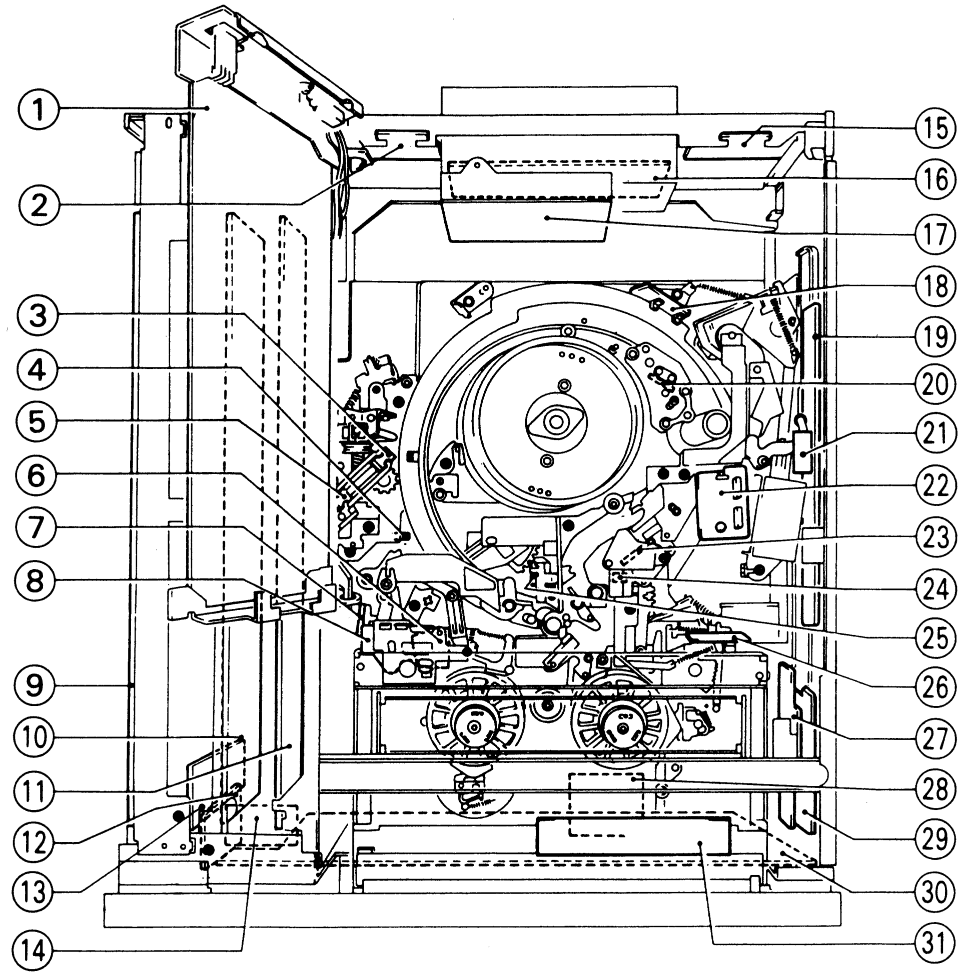
[BOTTOM VIEW



1	VO-39 Board
2	CN-596 Board
3	PH-5 Board
4	LM-13 Board
5	PH-5 Board
6	SE-46 Board
7	PTC-34 Board
8	PTC-30 Board
9	AU-82B Board
10	SV-93H Board
11	SY-174 Board
12	HP-30 Board
13	DUS-408 Board
14	MC-28 Board
15	AC-125 Board (UC) AC-126 Board (EK)
16	UR-14 Board (UC) UR-14E Board (EK)
17	DC-31 Board (UC) DC-31A Board (EK)
18	PTC-33 Board
19	RP-36A Board
20	DUS-92 Board
21	DUS-383 Board
22	DUS-147 Board
23	EC-28 Board
24	PH-5 Board
25	PH-5 Board
26	CC-37 Board
27	CC-36 Board
28	RM-39 Board
29	PD-40 Board
30	KY-105H Board
31	LP-41 Board

LOCATION OF THE PRINTED CIRCUIT BOARD

[TOP VIEW]


1
2
3
4
5
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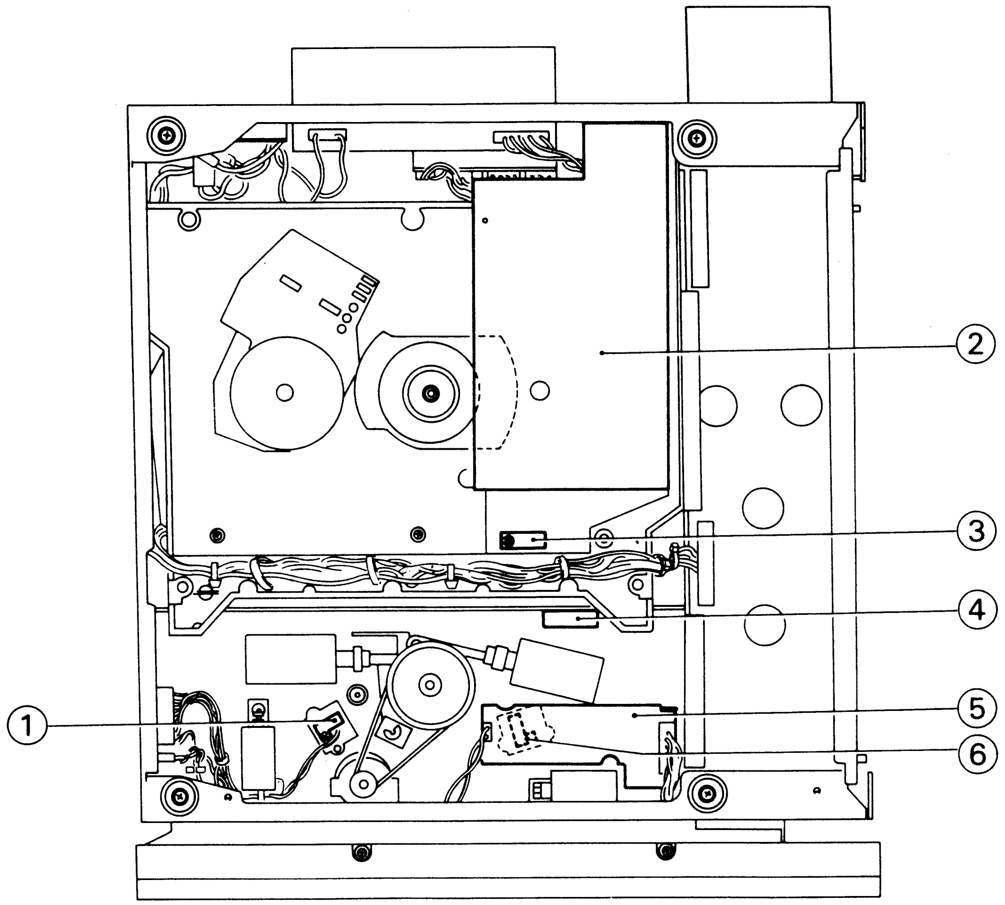
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31

1	VO-39 Board
2	CN-596 Board
3	PH-5 Board
4	LM-13 Board
5	PH-5 Board
6	SE-46 Board
7	PTC-34 Board
8	PTC-30 Board
9	AU-82B Board
10	SV-93H Board
11	SY-174 Board
12	HP-30 Board
13	DUS-408 Board
14	MC-28 Board
15	AC-125 Board (UC) AC-126 Board (EK)
16	UR-14 Board (UC) UR-14E Board (EK)
17	DC-31 Board (UC) DC-31A Board (EK)
18	PTC-33 Board
19	RP-36A Board
20	DUS-92 Board
21	DUS-383 Board
22	DUS-147 Board
23	EC-28 Board
24	PH-5 Board
25	PH-5 Board
26	CC-37 Board
27	CC-36 Board
28	RM-39 Board
29	PD-40 Board
30	KY-105H Board
31	LP-41 Board

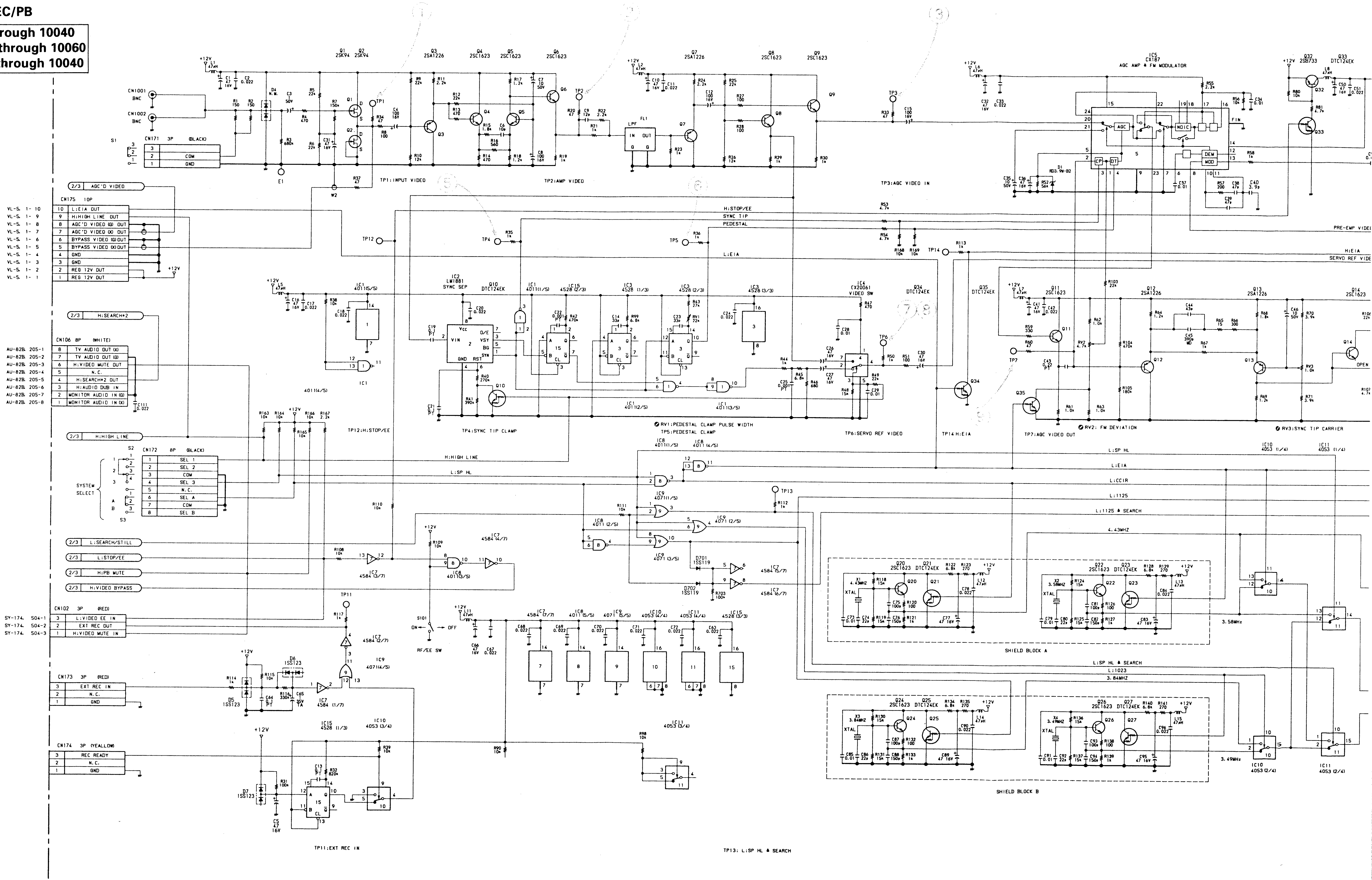
[BOTTOM VIEW]

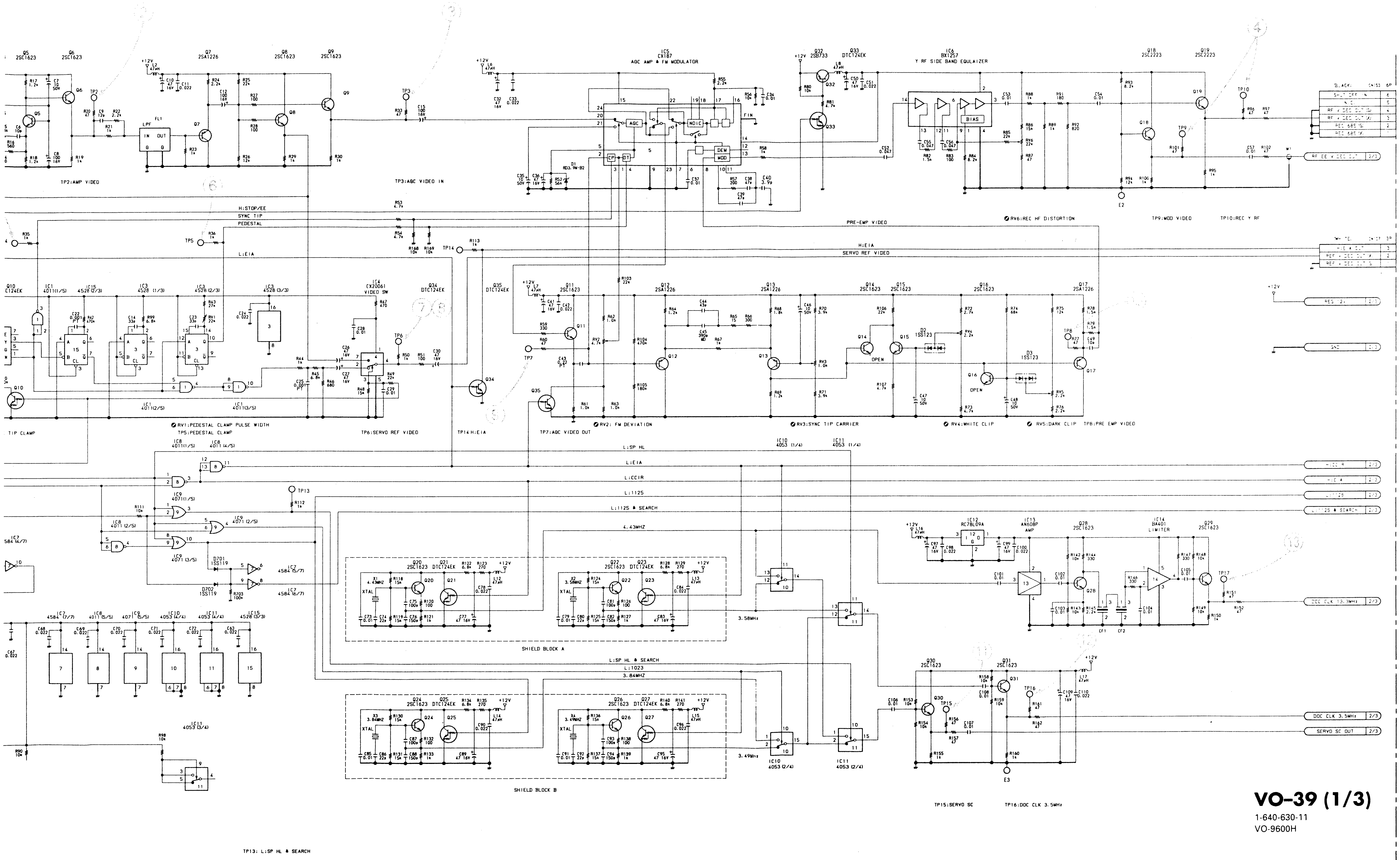


1	PTC-35 Board
2	IF-132 Board
3	PT-9 Board
4	TG-22 Board
5	PD-41 Board
6	PTC-35 Board

VO-39 (1/3): Y REC/PB

(J) S/N 10001 through 10040
(UC) S/N 10001 through 10060
(EK) S/N 10001 through 10040

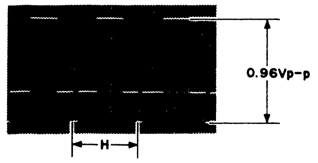

CN1001 BNC
CN1002 BNC
S1
CN171 3P (BLACK)
COM
GND
E1
W2
Q1 Q2 2SK94 2SK94
Q3 2SA1226
Q4 Q5 2SC1623 2SC1623
Q6 2SC1623
Q7 2SA1226
Q8 2SC1623
Q9 2SC1623
TP1
TP2
TP3
LPF
FL1
IN OUT
TP1:INPUT VIDEO
TP2:AMP VIDEO
TP3:AGC VIDEO IN
IC5 CX187
AGC AMP & FM MODULATOR
AGC
NOIC
DEM
MOD
CP
DT
D1 RD3.9M-B2
Q32 2SB733
Q33 DTC124EK
2/3 AGC'D VIDEO
CN175 10P
VL-5 1-10 L:EIA OUT
VL-5 1-9 H:HIGH LINE OUT
VL-5 1-8 AGC'D VIDEO (G) OUT
VL-5 1-7 AGC'D VIDEO (X) OUT
VL-5 1-6 BYPASS VIDEO (G) OUT
VL-5 1-5 BYPASS VIDEO (X) OUT
VL-5 1-4 GND
VL-5 1-3 GND
VL-5 1-2 REG 12V OUT
VL-5 1-1 REG 12V OUT
H:STOP/EE
SYNC TIP
PEDESTAL
L:EIA
PRE-EMP VIDEO
H:EIA
SERVO REF VIDEO
TP12
TP4
TP5
TP14
IC1 4011(5/5)
IC2 LM1881 SYNC SEP
VCC O/E VIN VSY BG SYN GND RST
Q10 DTC124EK
IC1 4011(1/5)
IC3 4528 (2/3)
IC3 4528 (1/3)
IC3 4528 (2/3)
IC3 4528 (3/3)
IC4 CX20061 VIDEO SW
Q34 DTC124EK
Q35 DTC124EK
Q11 2SC1623
Q12 2SA1226
Q13 2SA1226
Q14 2SC1623
OPEN
TP6
TP7
RV1
RV2
RV3
IC1 4011(4/5)
IC1 4011(2/5)
IC1 4011(3/5)
TP12:H:STOP/EE
TP4:SYNC TIP CLAMP
RV1:PEDESTAL CLAMP PULSE WIDTH
TP5:PEDESTAL CLAMP
TP6:SERVO REF VIDEO
TP14 H:EIA
TP7:AGC VIDEO OUT
RV2: FM DEVIATION
RV3:SYNC TIP CARRIER
2/3 H:SEARCH+2
CN106 8P (WHITE)
AU-82B 205-1 TV AUDIO OUT (X)
AU-82B 205-2 TV AUDIO OUT (G)
AU-82B 205-3 H:VIDEO MUTE OUT
AU-82B 205-4 N.C.
AU-82B 205-5 H:SEARCH+2 OUT
AU-82B 205-6 H:AUDIO DUB IN
AU-82B 205-7 MONITOR AUDIO IN (G)
AU-82B 205-8 MONITOR AUDIO IN (X)
2/3 H:HIGH LINE
S2
CN172 8P (BLACK)
SEL 1
SEL 2
COM
SEL 3
N.C.
SEL A
COM
SEL B
SYSTEM SELECT
S3
H:HIGH LINE
L:SP HL
IC8 4011(1/5)
IC8 4011(4/5)
IC9 4071(1/5)
IC9 4071(2/5)
IC8 4011(2/5)
IC9 4071(3/5)
TP13
L:SP HL
L:EIA
L:CCIR
L:1125
L:1125 & SEARCH
4.43MHZ
IC10 4053 (1/4)
IC11 4053 (1/4)
2/3 L:SEARCH/STILL
2/3 L:STOP/EE
2/3 H:PB MUTE
2/3 H:VIDEO BYPASS
IC7 4584(3/7)
IC7 4584(4/7)
IC8 4011(3/5)
D701 1SS119
D702 1SS119
IC7 4584(5/7)
IC7 4584(6/7)
TP11
CN102 3P (RED)
SY-174 504-1 L:VIDEO EE IN
SY-174 504-2 EXT REC OUT
SY-174 504-3 H:VIDEO MUTE IN
S101
ON OFF
RF/EE SW
IC7 4584(7/7)
IC8 4011(5/5)
IC9 4071(5/5)
IC10 4053 (4/4)
IC11 4053 (4/4)
IC15 4528 (3/3)
IC7 4584(2/7)
IC9 4071(4/5)
CN173 3P (RED)
EXT REC IN
N.C.
GND
D4 1SS123
D5 1SS123
IC7 4584 (1/7)
CN174 3P (YEALLOW)
REC READY
N.C.
GND
IC15 4528 (1/3)
IC10 4053 (3/4)
IC11 4053 (3/4)
D7 1SS123
TP11:EXT REC IN
TP13: L:SP HL & SEARCH
Q20 2SC1623
Q21 DTC124EK
Q22 2SC1623
Q23 DTC124EK
X1 4.43MHZ
X2 3.58MHZ
XTAL
SHIELD BLOCK A
3.58MHz
L:SP HL & SEARCH
L:1023
3.84MHZ
Q24 2SC1623
Q25 DTC124EK
Q26 2SC1623
Q27 DTC124EK
X3 3.84MHZ
X4 3.49MHZ
SHIELD BLOCK B
3.49MHz
IC10 4053 (2/4)
IC11 4053 (2/4)
+12V


Q5 2SC1623
Q6 2SC1623
Q7 2SA1226
Q8 2SC1623
Q9 2SC1623
FL1 LPF
TP2:AMP VIDEO
TP3:AGC VIDEO IN
IC5 CX187 AGC AMP & FM MODULATOR
AGC
NOIC
DEM
MOD
CP
DT
D1 RD3.9W-B2
Q32 2SB733
Q33 DTC124EK
IC6 BX1257 Y RF SIDE BAND EQUALIZER
BIAS
Q18 2SC2223
Q19 2SC2223
TP9:MOD VIDEO
TP10:REC Y RF
RV6:REC HF DISTORTION
H:STOP/EE
SYNC TIP
PEDESTAL
L:EIA
PRE-EMP VIDEO
H:EIA
SERVO REF VIDEO
TP5
TP14
IC1 4011(1/5)
IC15 4528 (2/3)
IC3 4528 (1/3)
IC2 4528 (2/3)
IC3 4528 (3/3)
IC4 CX20061 VIDEO SW
Q34 DTC124EK
Q35 DTC124EK
Q10
Q11 2SC1623
Q12 2SA1226
Q13 2SA1226
Q14 2SC1623
Q15 2SC1623
Q16 2SC1623
Q17 2SA1226
D2 1SS123
D3 1SS123
OPEN
TIP CLAMP
RV1:PEDESTAL CLAMP PULSE WIDTH
TP5:PEDESTAL CLAMP
TP6:SERVO REF VIDEO
TP14:H:EIA
TP7:AGC VIDEO OUT
RV2: FM DEVIATION
RV3:SYNC TIP CARRIER
RV4:WHITE CLIP
RV5:DARK CLIP
TP8:PRE EMP VIDEO
IC8 4011(1/5)
IC8 4011 (4/5)
IC9 4071(1/5)
IC9 4071 (2/5)
IC9 4071 (3/5)
IC8 4011 (2/5)
IC7 4584 (4/7)
IC7 4584 (5/7)
IC7 4584 (6/7)
D701 1SS119
D702 1SS119
TP13
L:SP HL
L:CCIR
L:1125
L:1125 & SEARCH
4.43MHZ
IC10 4053 (1/4)
IC11 4053 (1/4)
Q20 2SC1623
Q21 DTC124EK
Q22 2SC1623
Q23 DTC124EK
X1 4.43MHZ
X2 3.58MHZ
XTAL
SHIELD BLOCK A
3.58MHz
L:SP HL & SEARCH
L:1023
3.84MHZ
Q24 2SC1623
Q25 DTC124EK
Q26 2SC1623
Q27 DTC124EK
X3 3.84MHZ
X4 3.49MHZ
SHIELD BLOCK B
3.49MHz
IC10 4053 (2/4)
IC11 4053 (2/4)
IC11 4053 (3/4)
IC7 4584 (7/7)
IC8 4011 (5/5)
IC9 4071 (5/5)
IC10 4053 (4/4)
IC11 4053 (4/4)
IC15 4528 (3/3)
IC12 RC78L09A
IC13 AN608P AMP
Q28 2SC1623
IC14 BA401 LIMITER
Q29 2SC1623
TP17
CF1
CF2
Q30 2SC1623
Q31 2SC1623
TP15
TP16
E1
E2
E3
TP15:SERVO SC
TP16:DOC CLK 3.5MHz
TP13: L:SP HL & SEARCH
+12V
RF EE Y DEC OUT
REC 12V
GND
DOC CLK 13.3MHz
DOC CLK 3.5MHz
SERVO SC OUT
2/3

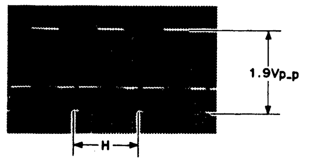
VO-39 (1/3)

1-640-630-11
VO-9600H

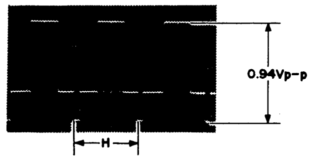
1
C,EE



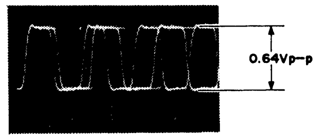
2
C,EE



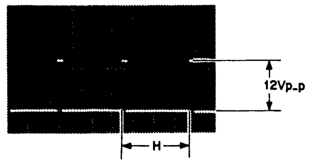
3
C,EE



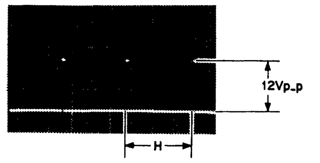
9,10
C,EE



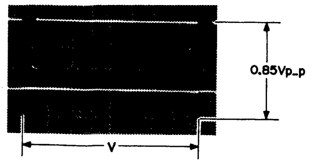
4
C,EE



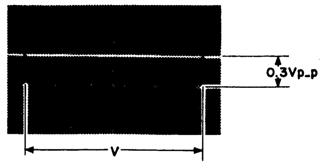
5
C,EE



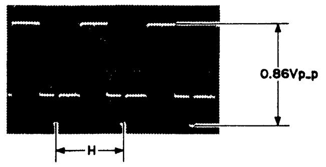
6-A
C,EE
5/60,
5/50)



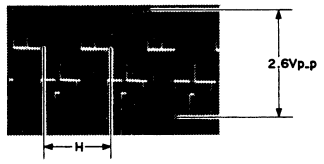
⑧ TP6-B
REC,EE
(1023/60,1049/60,
1125/60,1249/50)



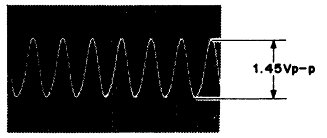
⑨ TP7
REC,EE



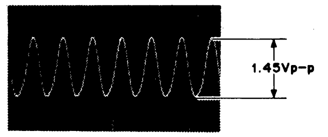
⑩ TP8
REC,EE



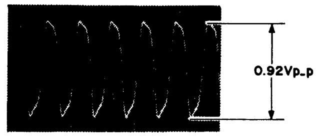
⑪ TP15
REC,EE,PB



⑫ TP16
REC,EE,PB



⑬ TP17
REC,EE,PB
(625/50,1249/50)



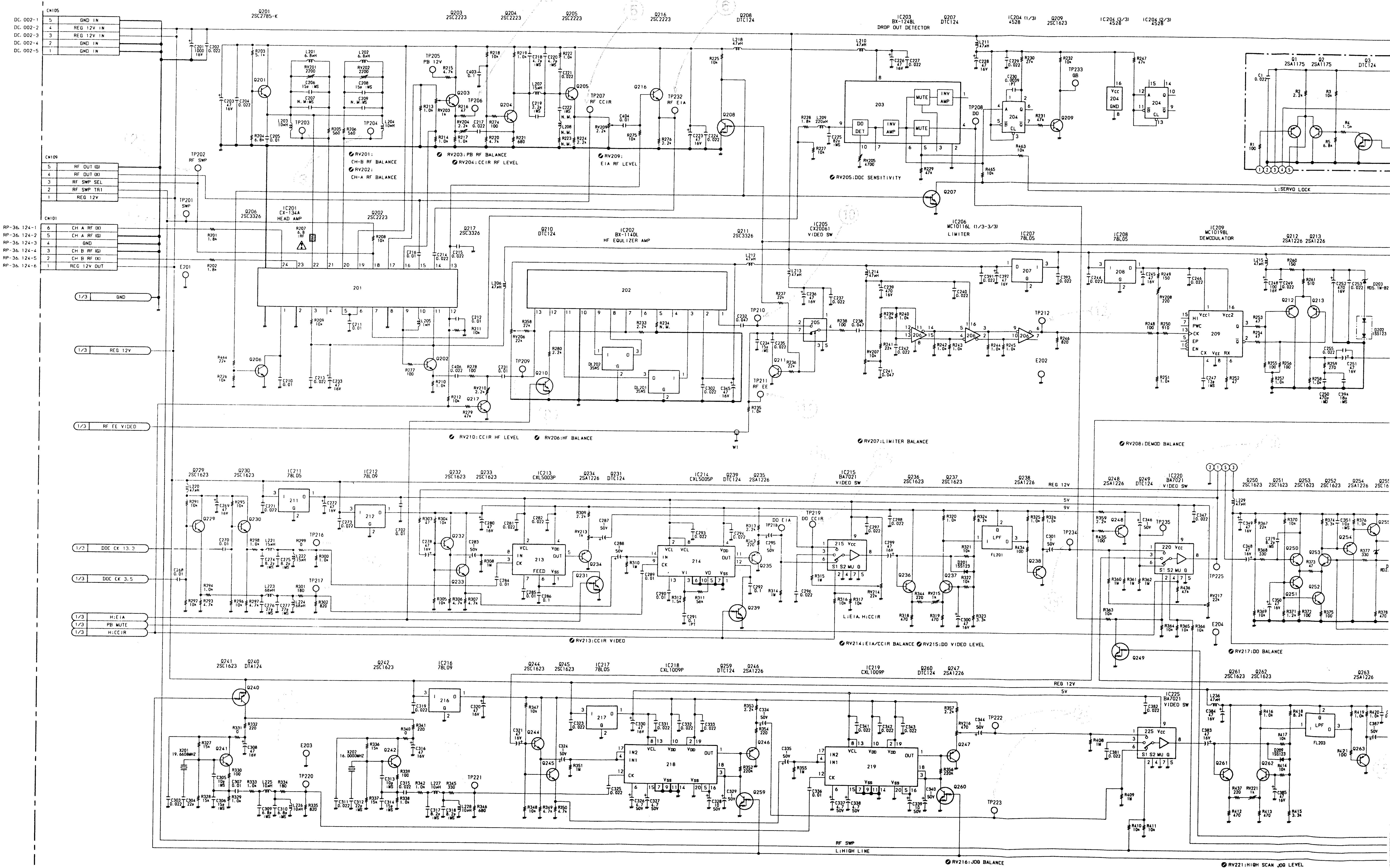
Supplemental Explanations of Waveform Photographs on VO-39 Board

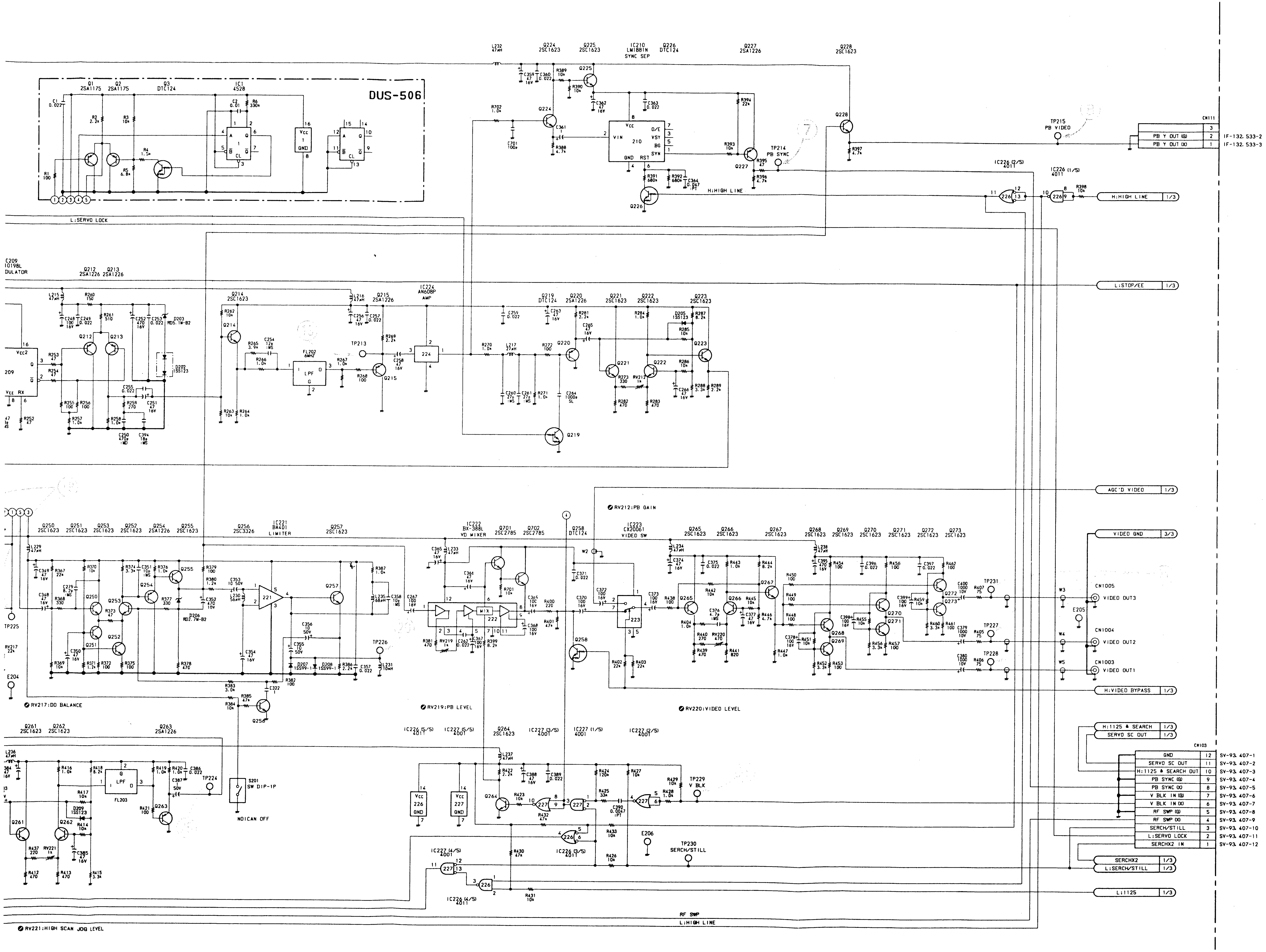
TP NO.	525/60		625/50		1023/60		1049/60		1125/60		1249/50	
	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB
TP1	◎	*	○	*	○	*	○	*	○	*	○	*
TP2	◎	*	○	*	○	*	○	*	○	*	○	*
TP3	◎	*	○	*	○	*	○	*	○	*	○	*
TP4	◎	*	○	*	○	*	○	*	○	*	○	*
TP5	◎	*	○	*	○	*	○	*	○	*	○	*
TP6	◎-A	*	○-A	*	○-B	*	◎-B	*	○-B	*	○-B	*
TP7	◎	*	○	*	○	*	○	*	○	*	○	*
TP8	◎	*	○	*	○	*	○	*	○	*	○	*
TP9	◎	-	◎	-	◎	-	◎	-	◎	-	◎	-
TP10	◎	-	◎	-	◎	-	◎	-	◎	-	◎	-
TP11	*	*	*	*	*	*	*	*	*	*	*	*
TP12	H	L	H	L	H	L	H	L	H	L	H	L
TP13	*	*	*	*	*	*	*	*	*	*	*	*
TP14	H	H	L	L	H	H	H	H	H	H	L	L
TP15	◎	◎	○	○	○	○	○	○	○	○	○	○
TP16	◎	◎	-	-	○	○	○	○	○	○	-	-
TP17	-	-	◎	◎	-	-	-	-	-	-	◎	◎

◎ ; Photograph
○ ; Waveform is similar to the photograph.
– ; No signal
* ; Waveform differs depending on mode.
H ; High level (about 12V)
L ; Low level (about 0V)

VO-39 (2/3): Y REC/PB

(J) S/N 10001 through 10040
(UC) S/N 10001 through 10060
(EK) S/N 10001 through 10040


CN105
DC. 002-1 GND IN
DC. 002-2 REG 12V IN
DC. 002-3 REG 12V IN
DC. 002-4 GND IN
DC. 002-5 GND IN
CN109
RF OUT (Q)
RF OUT (X)
RF SWP SEL
RF SWP TRI
REG 12V
CN101
RP-36. 124-1 CH A RF (X)
RP-36. 124-2 CH A RF (Q)
RP-36. 124-3 GND
RP-36. 124-4 CH B RF (Q)
RP-36. 124-5 CH B RF (X)
RP-36. 124-6 REC 12V OUT
1/3 GND
1/3 REG 12V
1/3 RF EE VIDEO
1/2 DOC CK 13.2
1/3 DOC CK 3.5
1/3 H:EIA
1/3 PB MUTE
1/3 H:CCIR
Q201 2SC2785-K
Q203 2SC2223
Q204 2SC2223
Q205 2SC2223
Q216 2SC2223
Q208 DTC124
IC203 BX-1248L DROP OUT DETECTOR
Q207 DTC124
IC204 (1/3) 4528
Q209 2SC1623
IC204 (3/3) 4528
IC204 (2/3) 4528
Q1 2SA1175
Q2 2SA1175
Q3 DTC124
TP205 PB 12V
TP206
TP207 RF CCIR
TP232 RF EIA
TP233 GB
TP208 DO
TP203
TP204
RV201: CH-B RF BALANCE
RV202: CH-A RF BALANCE
RV203: PB RF BALANCE
RV204: CCIR RF LEVEL
RV209: EIA RF LEVEL
RV205: DOC SENSITIVITY
L:SERVO LOCK
TP202 RF SWP
TP201 SWP
E201
Q206 2SC3326
IC201 CX-134A HEAD AMP
Q202 2SC2223
Q217 2SC3326
Q210 DTC124
IC202 BX-1140L HF EQUALIZER AMP
Q211 2SC3326
IC205 CX20061 VIDEO SW
IC206 MC10116L (1/3-3/3) LIMITER
IC207 78L05
IC208 78L05
IC209 MC10198L DEMODULATOR
Q212 2SA1226
Q213 2SA1226
201
202
DL202 3SNS
DL201 3SNS
TP209
TP210
TP211 RF EE
TP212
E202
W1
RV210: CCIR HF LEVEL
RV206: HF BALANCE
RV207: LIMITER BALANCE
RV208: DEMOD BALANCE
Q229 2SC1623
Q230 2SC1623
IC211 78L05
IC212 78L09
Q232 2SC1623
Q233 2SC1623
IC213 CXL5003P
Q234 2SA1226
Q231 DTC124
IC214 CXL5005P
Q239 DTC124
Q235 2SA1226
IC215 BA7021 VIDEO SW
Q236 2SC1623
Q237 2SC1623
Q238 2SA1226
REG 12V
5V
9V
Q248 2SA1226
Q249 DTC124
IC220 BA7021 VIDEO SW
Q250 2SC1623
Q251 2SC1623
Q253 2SC1623
Q252 2SC1623
Q254 2SA1226
TP216
TP217
TP219 DO CCIR
DO EIA
TP234
TP235
TP225
E204
LPF FL201
L:EIA H:CCIR
RV213: CCIR VIDEO
RV214: EIA/CCIR BALANCE
RV215: DO VIDEO LEVEL
RV217: DO BALANCE
Q241 2SC1623
Q240 DTA124
Q242 2SC1623
IC216 78L09
Q244 2SC1623
Q245 2SC1623
IC217 78L05
IC218 CXL1009P
Q259 DTC124
Q246 2SA1226
IC219 CXL1009P
Q260 DTC124
Q247 2SA1226
IC225 BA7021 VIDEO SW
Q261 2SC1623
Q262 2SC1623
Q263 2SA1226
X201 19.6608MHZ
X202 16.0000MHZ
E203
TP220
TP221
TP222
TP223
LPF FL203
RF SWP
L:HIGH LINE
RV216: JOG BALANCE
RV221: HIGH SCAN JOG LEVEL


DUS-506
Q1 2SA1175
Q2 2SA1175
Q3 DTC124
IC1 4528
L:SERVO LOCK
Q224 2SC1623
Q225 2SC1623
IC210 LM1881N SYNC SEP
Q226 DTC124
Q227 2SA1226
Q228 2SC1623
TP215 PB VIDEO
TP214 PB SYNC
H:HIGH LINE
IC226 (2/5) 4011
IC226 (1/5) 4011
CN111
PB Y OUT (G)
PB Y OUT (X)
IF-132.533-2
IF-132.533-3
L:STOP/EE
Q212 2SA1226
Q213 2SA1226
Q214 2SC1623
Q215 2SA1226
IC224 AN608P AMP
FL202 6MHZ LPF
TP213
Q219 DTC124
Q220 2SA1226
Q221 2SC1623
Q222 2SC1623
Q223 2SC1623
AGC'D VIDEO
RV212:PB GAIN
Q250 2SC1623
Q251 2SC1623
Q253 2SC1623
Q252 2SC1623
Q254 2SA1226
Q255 2SC1623
Q256 2SC3326
IC221 BA401 LIMITER
Q257 2SC1623
IC222 BX-388L VD MIXER
Q701 2SC2785
Q702 2SC2785
Q258 DTC124
IC223 CX20061 VIDEO SW
Q265 2SC1623
Q266 2SC1623
Q267 2SC1623
Q268 2SC1623
Q269 2SC1623
Q270 2SC1623
Q271 2SC1623
Q272 2SC1623
Q273 2SC1623
VIDEO GND 3/3
TP231
CN1005 VIDEO OUT3
CN1004 VIDEO OUT2
CN1003 VIDEO OUT1
TP227
TP228
E205
H:VIDEO BYPASS 1/3
TP225
TP226
E204
RV217:DD BALANCE
RV219:PB LEVEL
RV220:VIDEO LEVEL
Q261 2SC1623
Q262 2SC1623
Q263 2SA1226
FL203 LPF
TP224
S201 SW DIP-1P
NOICAN OFF
IC226 (5/5) 4011
IC227 (5/5) 4001
Q264 2SC1623
IC227 (3/5) 4001
IC227 (1/5) 4001
IC227 (2/5) 4001
TP229 V BLK
E206
TP230 SERCH/STILL
IC226 (3/5) 4011
IC227 (4/5) 4001
IC226 (4/5) 4011
RF SWP
L:HIGH LINE
RV221:HIGH SCAN JOG LEVEL
H:1125 ♠ SEARCH 1/3
SERVO SC OUT 1/3
CN103
GND 12 SV-93.407-1
SERVO SC OUT 11 SV-93.407-2
H:1125 ♠ SEARCH OUT 10 SV-93.407-3
PB SYNC (G) 9 SV-93.407-4
PB SYNC (X) 8 SV-93.407-5
V BLK IN (G) 7 SV-93.407-6
V BLK IN (X) 6 SV-93.407-7
RF SWP (G) 5 SV-93.407-8
RF SWP (X) 4 SV-93.407-9
SERCH/STILL 3 SV-93.407-10
L:SERVO LOCK 2 SV-93.407-11
SERCHX2 IN 1 SV-93.407-12
SERCHX2 1/3
L:SERCH/STILL 1/3
L:1125 1/3

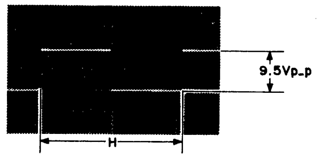
注意　：⚠印のついた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

Note : **The ⚠-marked components are critical to safety.**
Replace only with same components as specified.

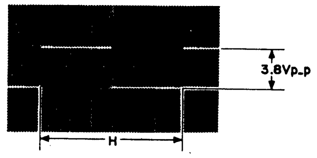
VO-39 (2/3)

1-640-630-11
VO-9600H

① TP201
REC,PB

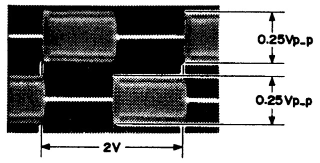


② TP202
REC,PB

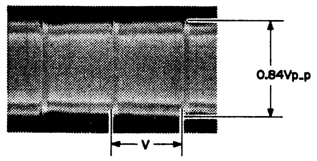


③ TP203
PB (525/60)

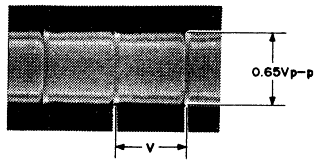
TP204
PB(525/60)



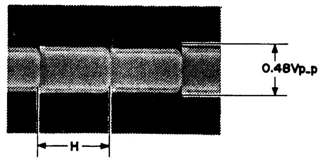
④ TP206
PB (525/60)



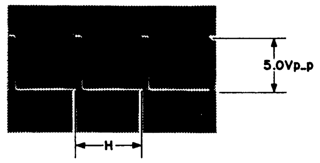
⑤ TP207
PB(525/60)



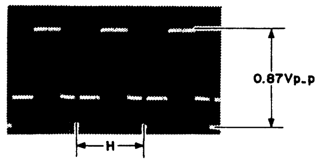
⑥ TP232
PB(525/60)



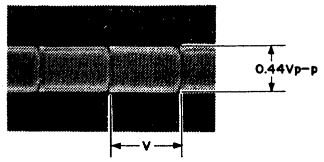
⑦ TP214
REC,EE,PB



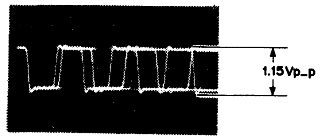
⑧ TP215
REC,EE,PB



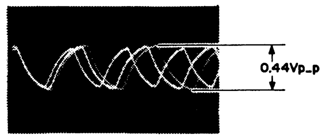
⑨ TP209
PB(525/60)



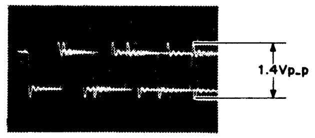
⑩ TP210
PB



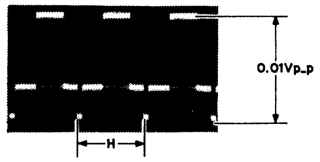
⑪ TP211
REC,EE



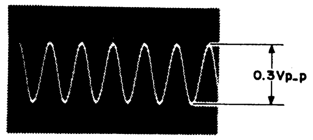
⑫ TP212
REC,EE,PB



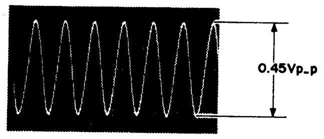
⑬ TP213
REC,EE,PB



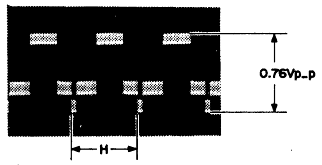
⑭ TP216
REC,EE,PB
(625/50)



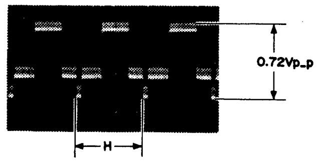
⑮ TP217
REC,EE,PB
(525/60)



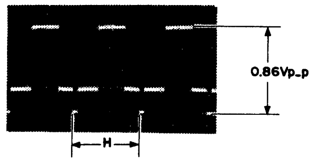
⑯ TP218
PB(525/60)



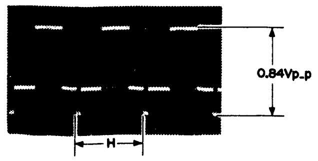
⑰ TP219
PB(625/60)



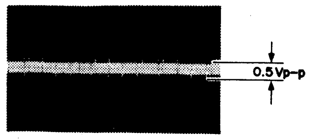
⑱ TP234
REC,EE,PB



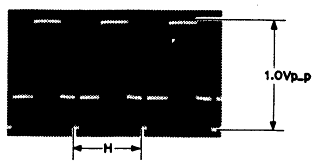
⑲ TP235,
TP225
REC,EE,PB



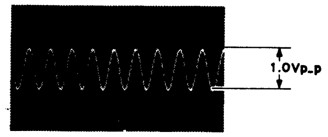
⑳ TP226
REC,EE,PB



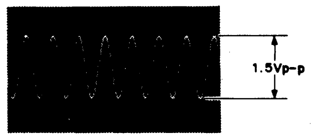
㉑ TP227,228,
TP231
REC,EE,PB



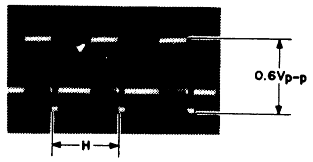
㉒ TP220
REC,EE,PB
(1023/60,
1049/60,
1125/60,
1249/50)



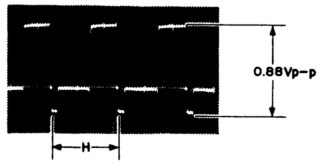
㉓ TP221
REC,EE,PB
(1023/60,
1049/60,
1125/60,
1249/50)



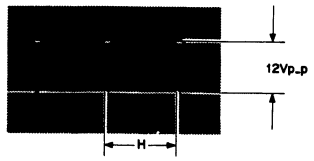
㉔ TP222,223
PB (1023/60,
1049/60,
1125/60,
1249/50)



㉕ TP224
PB (1023/60,
1049/60,
1125/60,
1249/50)



㉖ TP229
REC,PB



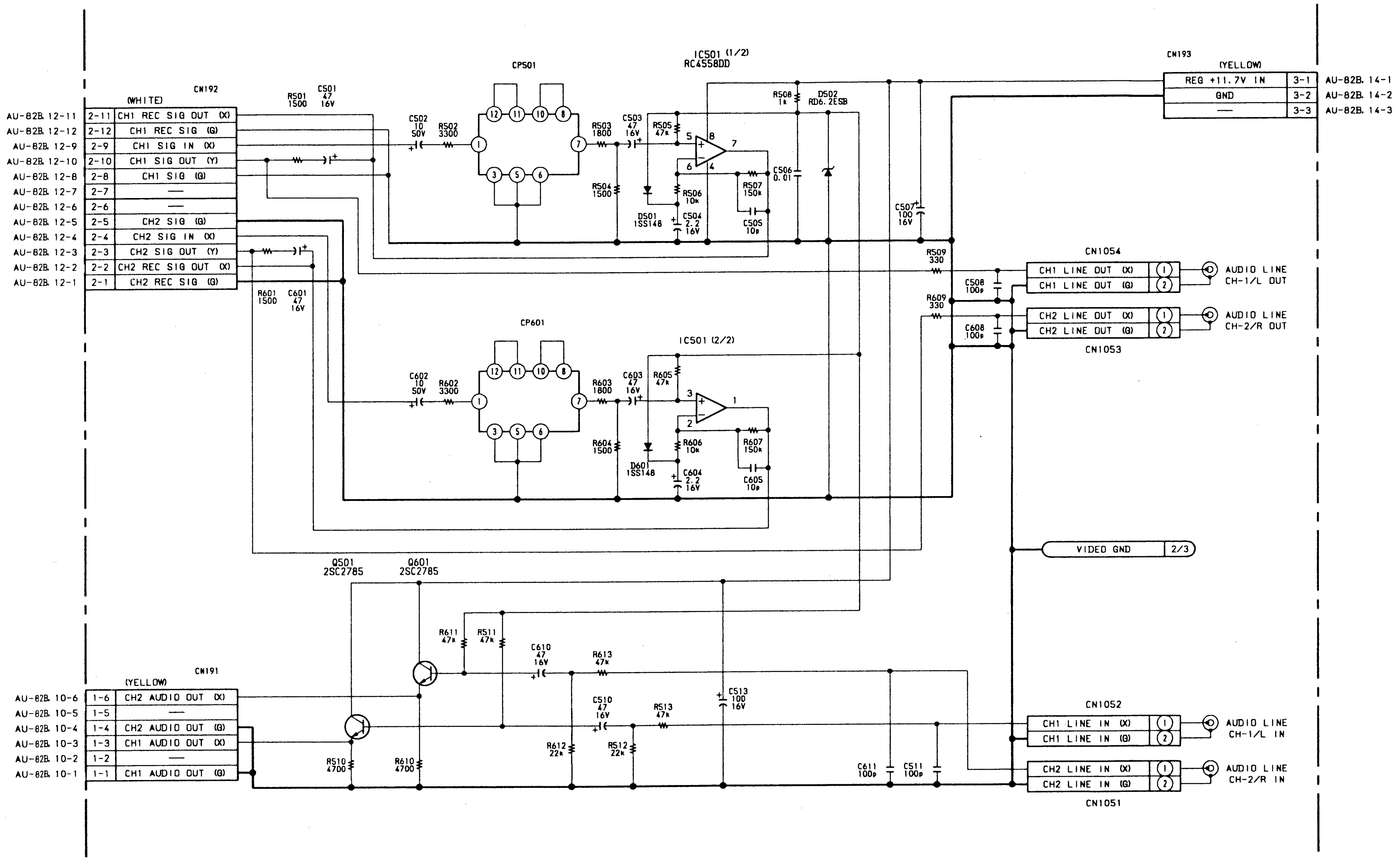
Supplemental Explanations of Waveform Photographs on VO-39 Board

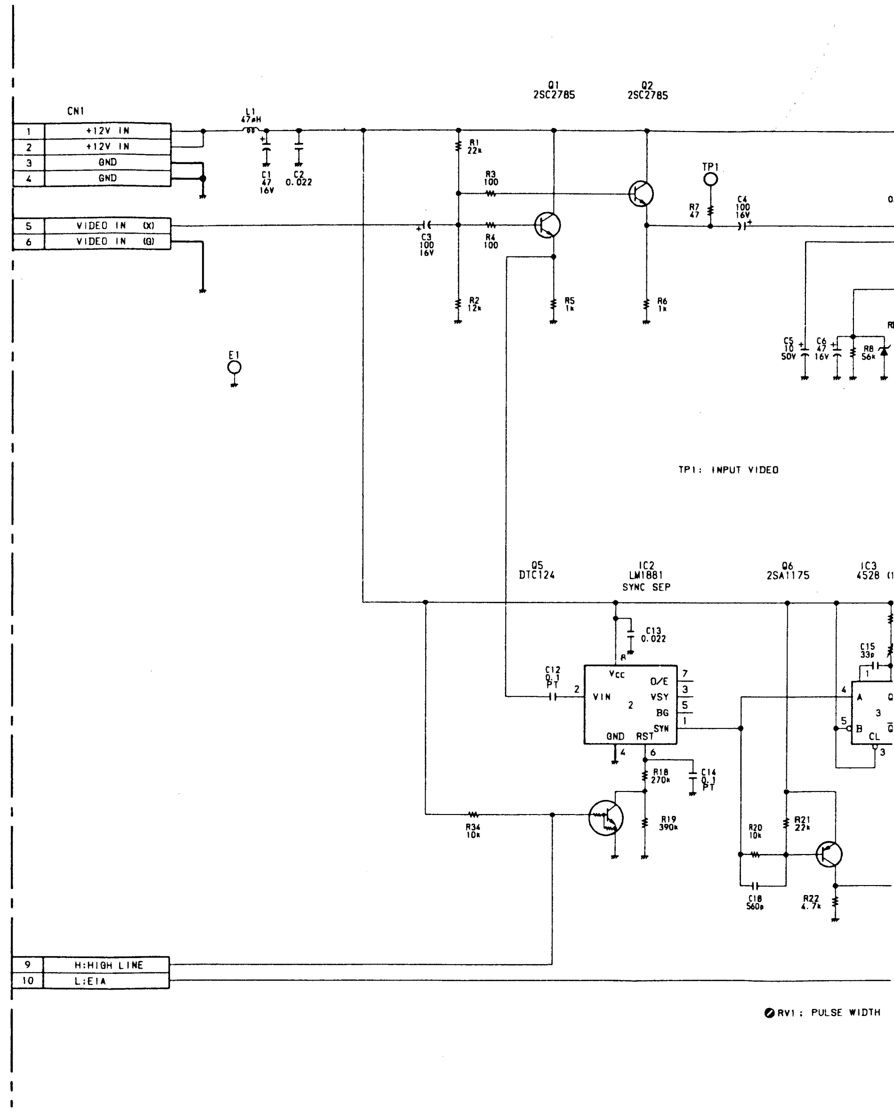
TP NO.	525/60		625/50		1023/60		1049/60		1125/60		1249/50	
	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB
TP201	◎/–	◎	○/–	○	◎/–	○	◎/–	○	◎/–	○	○/–	○
TP202	◎/–	◎	○/–	○	◎/–	○	◎/–	○	◎/–	○	○/–	○
TP203	*	◎	*	○	*	○	*	○	*	○	*	○
TP204	*	◎	*	○	*	○	*	○	*	○	*	○
TP205	*	*	*	*	*	*	*	*	*	*	*	*
TP206	*	◎	*	○	*	○	*	○	*	○	*	○
TP207	*	◎	*	○	*	○	*	○	*	○	*	○
TP209	*	◎	*	○	*	○	*	○	*	○	*	○
TP210	*	◎	*	○	*	○	*	○	*	○	*	○
TP211	◎	*	○	*	○	*	○	*	○	*	○	*
TP212	○	◎	○	○	○	○	○	○	○	○	○	○
TP213	○	◎	○	○	○	○	○	○	○	○	○	○
TP214	○	◎	○	○	○	○	○	○	○	○	○	○
TP215	○	◎	○	○	○	○	○	○	○	○	○	○
TP216	–	–	◎	◎	–	–	–	–	–	–	◎	◎
TP217	◎	◎	–	–	○	○	○	○	○	○	–	–
TP218	*	◎	–	–	*	○	*	○	*	○	–	–
TP219	–	–	*	◎	–	–	–	–	–	–	*	○
TP220	–	–	–	–	◎	◎	◎	◎	◎	◎	◎	◎
TP221	–	–	–	–	◎	◎	◎	◎	◎	◎	◎	◎
TP222	–	–	–	–	*	○	*	◎	*	○	*	○
TP223	–	–	–	–	*	○	*	◎	*	○	*	○
TP224	–	–	–	–	*	○	*	◎	*	○	*	○
TP225	○	◎	○	○	○	○	○	○	○	○	○	○
TP226	○	◎	○	○	○	○	○	○	○	○	○	○
TP227	○	◎	○	○	○	○	○	○	○	○	○	○
TP228	○	◎	○	○	○	○	○	○	○	○	○	○
TP229	◎/–	◎	○/–	○	◎/–	○	◎/–	○	◎/–	○	○/–	○
TP230	*	*	*	*	*	*	*	*	*	*	*	*
TP231	○	◎	○	○	○	○	○	○	○	○	○	○
TP232	*	◎	*	○	*	○	*	○	*	○	*	○
TP233	*	*	*	*	*	*	*	*	*	*	*	*
TP234	○	◎	○	○	○	○	○	○	○	○	○	○
TP235	○	◎	○	○	○	○	○	○	○	○	○	○

◎ ; Photograph
○ ; Waveform is similar to the photograph.
– ; No signal
* ; Waveform differs depending on mode.

VO-39 (3/3): Y REC/PB
DUS-506: PB WHITE CLIP
VL-5: EE LEVEL

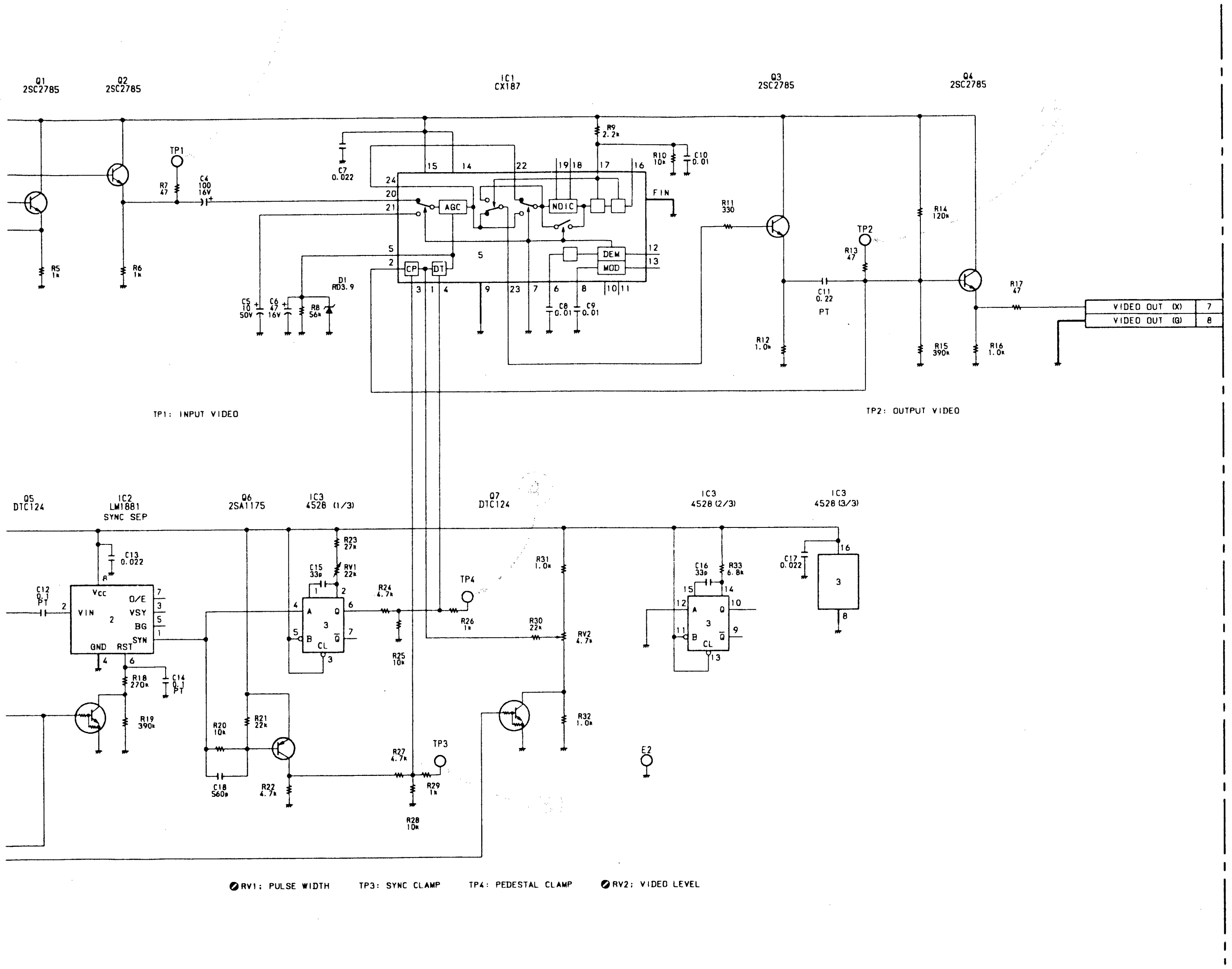
(J) S/N 10001 through 10040
(UC) S/N 10001 through 10060
(EK) S/N 10001 through 10040


CN192
(WHITE)
AU-82B. 12-11 | 2-11 | CH1 REC SIG OUT (X)
AU-82B. 12-12 | 2-12 | CH1 REC SIG (G)
AU-82B. 12-9 | 2-9 | CH1 SIG IN (X)
AU-82B. 12-10 | 2-10 | CH1 SIG OUT (Y)
AU-82B. 12-8 | 2-8 | CH1 SIG (G)
AU-82B. 12-7 | 2-7 | —
AU-82B. 12-6 | 2-6 | —
AU-82B. 12-5 | 2-5 | CH2 SIG (G)
AU-82B. 12-4 | 2-4 | CH2 SIG IN (X)
AU-82B. 12-3 | 2-3 | CH2 SIG OUT (Y)
AU-82B. 12-2 | 2-2 | CH2 REC SIG OUT (X)
AU-82B. 12-1 | 2-1 | CH2 REC SIG (G)
R501 1500
C501 47 16V
R601 1500
C601 47 16V
CP501
CP601
C502 10 50V
R502 3300
C602 10 50V
R602 3300
R503 1800
C503 47 16V
R505 47k
R504 1500
R506 10k
D501 1SS148
C504 2.2 16V
R507 150k
C505 10p
IC501 (1/2) RC4558DD
R508 1k
D502 RD6.2ESB
C506 0.01
C507 100 16V
R603 1800
C603 47 16V
R605 47k
R604 1500
R606 10k
D601 1SS148
C604 2.2 16V
R607 150k
C605 10p
IC501 (2/2)
CN193
(YELLOW)
REG +11.7V IN | 3-1 | AU-82B. 14-1
GND | 3-2 | AU-82B. 14-2
— | 3-3 | AU-82B. 14-3
R509 330
R609 330
C508 100p
C608 100p
CN1054
CH1 LINE OUT (X)
CH1 LINE OUT (G)
AUDIO LINE CH-1/L OUT
CH2 LINE OUT (X)
CH2 LINE OUT (G)
AUDIO LINE CH-2/R OUT
CN1053
VIDEO GND 2/3
Q501 2SC2785
Q601 2SC2785
R611 47k
R511 47k
C610 47 16V
R613 47k
C510 47 16V
R513 47k
C513 100 16V
R612 22k
R512 22k
R510 4700
R610 4700
C611 100p
C511 100p
CN191
(YELLOW)
AU-82B. 10-6 | 1-6 | CH2 AUDIO OUT (X)
AU-82B. 10-5 | 1-5 | —
AU-82B. 10-4 | 1-4 | CH2 AUDIO OUT (G)
AU-82B. 10-3 | 1-3 | CH1 AUDIO OUT (X)
AU-82B. 10-2 | 1-2 | —
AU-82B. 10-1 | 1-1 | CH1 AUDIO OUT (G)
CN1052
CH1 LINE IN (X)
CH1 LINE IN (G)
AUDIO LINE CH-1/L IN
CH2 LINE IN (X)
CH2 LINE IN (G)
AUDIO LINE CH-2/R IN
CN1051

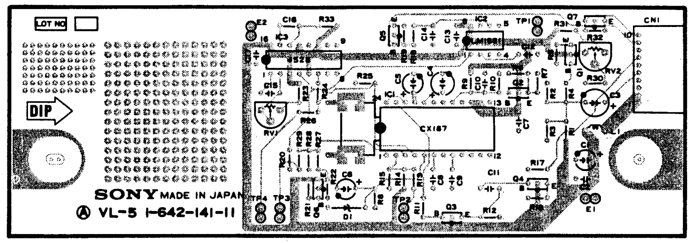

CN1
1 +12V IN
2 +12V IN
3 GND
4 GND
5 VIDEO IN (X)
6 VIDEO IN (G)
L1 47μH
C1 47 16V
C2 0.022
C3 100 16V
R1 22k
R2 12k
R3 100
R4 100
Q1 2SC2785
Q2 2SC2785
R5 1k
R6 1k
TP1
R7 47
C4 100 16V
C5 10 50V
C6 47 16V
R8 56k
E1
TP1: INPUT VIDEO
Q5 DTC124
IC2 LM1881 SYNC SEP
Q6 2SA1175
IC3 4528
C13 0.022
C12 0.1 PT
VCC
VIN
O/E
VSY
BG
SYN
GND
RST
C14 0.1 PT
R18 270k
R19 390k
R34 10k
C15 33p
R20 10k
R21 22k
C18 560p
R22 4.7k
9 H:HIGH LINE
10 L:EIA
RV1 : PULSE WIDTH

VO-39 (3/3)

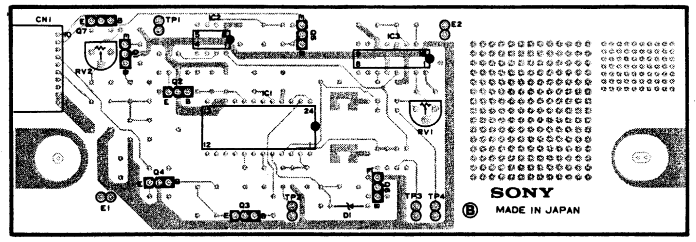
1-640-630-11
VO-9600H


Q1
2SC2785
Q2
2SC2785
IC1
CX187
Q3
2SC2785
Q4
2SC2785
TP1
R7 47
C4 100 16V
C7 0.022
R9 2.2k
R10 10k
C10 0.01
AGC
NDIC
DEM
MOD
CP
DT
FIN
R11 330
TP2
R13 47
R14 120k
R17 47
C11 0.22 PT
R12 1.0k
R15 390k
R16 1.0k
R5 1k
R6 1k
C5 10 50V
C6 47 16V
R8 56k
D1 RD3.9
C8 0.01
C9 0.01
VIDEO OUT (X) 7
VIDEO OUT (G) 8
TP1: INPUT VIDEO
TP2: OUTPUT VIDEO
Q5
DTC124
IC2
LM1881
SYNC SEP
Q6
2SA1175
IC3
4528 (1/3)
Q7
DTC124
IC3
4528 (2/3)
IC3
4528 (3/3)
C12 0.1 PT
C13 0.022
Vcc
VIN
GND
RST
O/E
VSY
BG
SYN
R18 270k
C14 0.1 PT
R19 390k
R20 10k
R21 22k
C18 560p
R22 4.7k
C15 33p
R23 27k
RV1 22k
R24 4.7k
R25 10k
TP4
R26 1k
R27 4.7k
TP3
R29 1k
R28 10k
R30 22k
R31 1.0k
RV2 4.7k
R32 1.0k
C16 33p
R33 6.8k
C17 0.022
E2
RV1: PULSE WIDTH
TP3: SYNC CLAMP
TP4: PEDESTAL CLAMP
RV2: VIDEO LEVEL

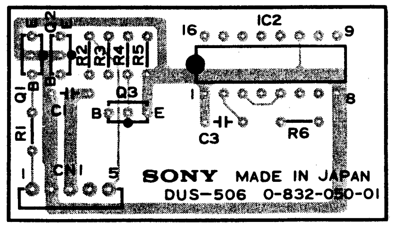
VL-5
1-642-141-11
VO-9600H


LOT NO
DIP
CX187
CN1
TP1
SONY MADE IN JAPAN
Ⓐ VL-5 1-642-141-11

VL-5
-COMPONENT SIDE-
1-642-141-11
VO-9600H

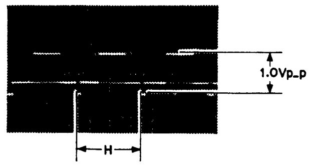

CN1
TP1
RV2
RV1
E1
E2
D1
SONY
Ⓑ MADE IN JAPAN

VL-5
-SOLDERING SIDE-
1-642-141-11
VO-9600H

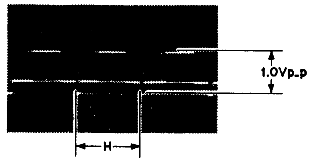

IC2
16
9
1
8
Q1
R1
R2
R3
R4
R5
Q3
B
E
C3
R6
CN1
5
SONY MADE IN JAPAN
DUS-506 0-832-050-01

DUS-506
-COMPONENT SIDE-
VO-9600H

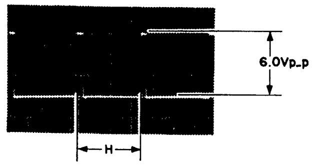
1
C,EE



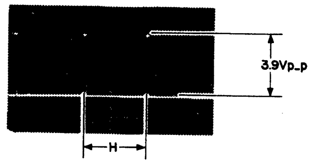
2
C,EE



3
C,EE



4
C,EE



Supplemental Explanations of Waveform Photographs on VL-5 Board

TP NO.	525/60		625/50		1023/60		1049/60		1125/60		1249/50	
	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB
TP1	◎	*	○	*	○	*	○	*	○	*	○	*
TP2	◎	*	○	*	○	*	○	*	○	*	○	*
TP3	◎	*	○	*	○	*	○	*	○	*	○	*
TP4	◎	*	○	*	○	*	○	*	○	*	○	*

◎ ; Photograph
○ ; Waveform is similar to the photograph.
– ; No signal
* ; Waveform differs depending on mode.

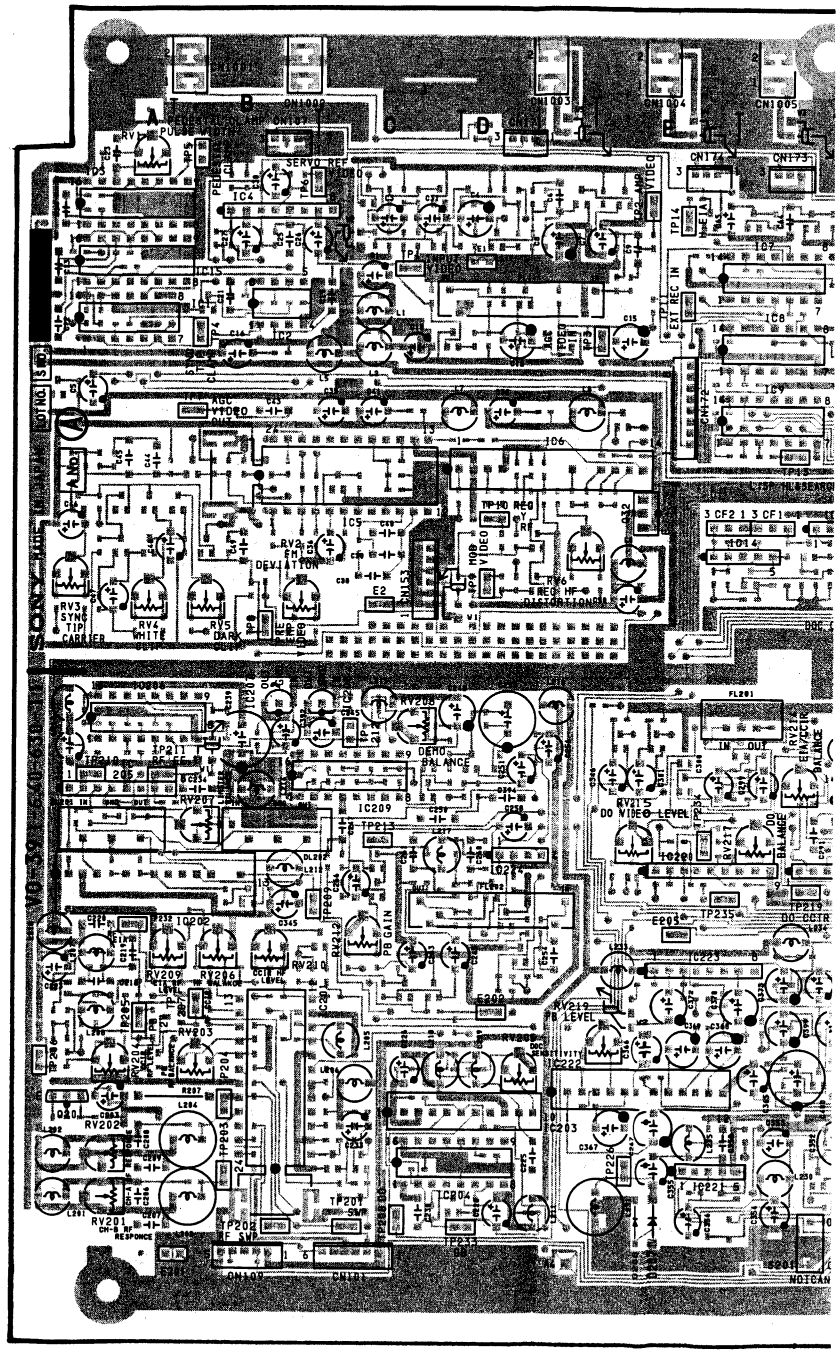
VO-39: Y REC/PB

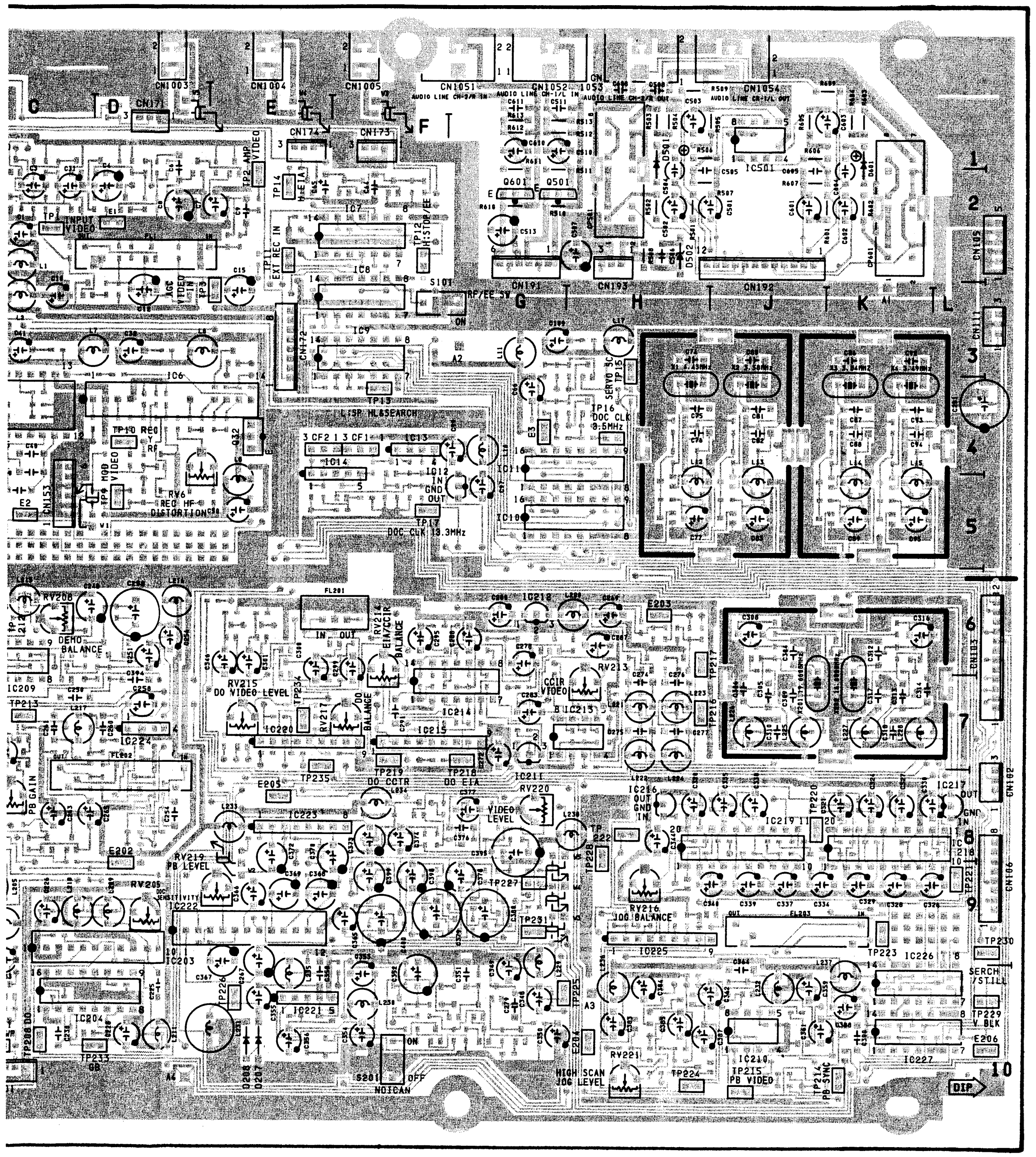
(J) S/N 10001 through 10040
(UC) S/N 10001 through 10060
(EK) S/N 10001 through 10040

VO-39 (1-640-630-11)

CF1	F-4
CF2	E-4
CN101	C-10
CN102	L-8
CN103	L-6
CN105	L-2
CN106	L-9
CN107	B-1
CN109	B-10
CN111	L-3
CN153	C-5
CN171	D-1
CN172	E-3
CN173	F-1
CN174	E-1
CN191	G-3
CN192	J-3
CN193	H-3
DL201	A-7
DL202	C-7
*D1	C-4
*D2	A-4
*D3	B-4
*D4	C-2
*D5	F-2
*D6	F-2
*D7	A-3
*D201	E-7
*D202	D-6
*D203	D-6
*D205	C-9
*D206	F-10
D207	E-10
D208	E-10
*D209	H-10
D501	H-1
D502	H-2
D601	K-1
E1	D-2
E2	C-5
E3	G-4
E201	B-10
E202	D-8
E203	H-6
E204	H-10
E205	E-8
E206	L-10
FL1	D-2
FL201	F-6
FL202	D-7
FL203	J-9
IC1	B-2
IC2	B-3
IC3	A-1
IC4	B-2
IC5	C-4
IC6	D-4
IC7	F-2
IC8	F-2
IC9	F-3
IC10	G-5
IC11	G-4
IC12	F-4
IC13	F-4
IC14	F-4
IC15	B-2
IC201	C-9
IC202	B-8
IC203	D-10
IC204	D-10
IC205	A-6
IC206	A-6
IC207	B-6
IC208	C-6
IC209	C-7
IC210	J-10
IC211	G-8
IC212	G-6
IC213	H-7
IC214	G-7
IC215	F-7
IC216	H-8
IC217	L-8
IC218	L-8
IC219	J-8
IC220	E-7
IC221	E-10
IC222	D-9
IC223	E-8
IC224	D-7
IC225	H-9
IC226	K-9
IC227	K-10
IC501	J-1
L1	C-2
L2	C-3
L5	C-3
L6	D-3
L7	C-3
L8	E-4
L11	G-3
L12	H-4
L13	J-4
L14	K-4
L15	K-4
L16	G-4
L17	H-3
L201	A-10
L202	A-10
L203	B-10
L204	B-9
L205	C-9
L206	C-9
L207	A-8
L209	D-9
L210	C-9
L211	D-10
L212	C-7
L213	A-6
L214	B-6
L215	C-6
L216	D-6
L217	C-7
L218	A-8
L220	H-6
L221	H-7
L222	H-8
L223	H-7
L224	H-8
L225	J-7
L226	J-7
L227	K-7
L228	K-7
L229	G-10
L230	F-10
L231	E-10
L232	J-10
L233	E-8
L234	F-8
L235	E-10
L236	H-10
L237	K-9
L238	H-8
*Q1	C-1
*Q2	C-2
*Q3	D-1
*Q4	D-2
*Q5	D-1
*Q6	E-1
*Q7	D-2
*Q8	C-3
*Q9	D-3
*Q10	B-2
*Q11	B-4
*Q12	B-4
*Q13	A-4
*Q14	A-4
*Q15	A-4
*Q16	A-4
*Q17	B-4
*Q18	D-5
*Q19	D-4
*Q20	H-5
*Q21	H-5
*Q22	H-5
*Q23	H-5
*Q24	J-5
*Q25	J-5
*Q26	K-5
*Q27	K-5
*Q28	F-4
*Q29	F-5
*Q30	H-3
*Q31	H-4
Q32	E-4
*Q33	E-3
*Q34	E-2
*Q35	B-5
Q201	A-9
*Q202	B-10
*Q203	A-9
*Q204	A-8
*Q205	B-9
*Q206	C-10
*Q207	C-10
*Q208	C-10
*Q209	C-10
*Q210	B-7
*Q211	B-7
*Q212	C-6
*Q213	C-7
*Q214	D-8
*Q215	D-8
*Q216	A-8
*Q217	C-8
*Q219	D-8
*Q220	C-7
*Q221	C-8
*Q222	C-7
*Q223	C-7
*Q224	K-10
*Q225	J-10
*Q226	J-10
*Q227	J-10
*Q228	K-10
*Q229	H-6
*Q230	H-6
*Q231	G-7
*Q232	G-6
*Q233	G-6
*Q234	H-7
*Q235	G-6
*Q236	E-6
*Q237	E-6
*Q238	E-6
*Q239	F-6
*Q240	K-6
*Q241	J-6
*Q242	K-6
*Q244	K-8
*Q245	H-8
*Q246	J-9
*Q247	H-9
*Q248	E-6
*Q249	E-7
*Q250	G-10
*Q251	G-10
*Q252	G-10
*Q253	G-10
*Q254	G-10
*Q255	F-10
*Q256	F-10
*Q257	E-10
*Q258	E-9
*Q259	K-9
*Q260	H-9
*Q261	H-10
*Q262	H-10
*Q263	H-10
*Q264	L-10
*Q265	F-8
*Q266	G-8
*Q267	F-8
*Q268	G-9
*Q269	G-9
*Q270	G-9
*Q271	F-9
*Q272	F-9
*Q273	F-9
Q501	G-2
Q601	G-2
RV1	A-1
RV2	B-4
RV3	A-5
RV4	A-5
RV5	B-5
RV6	D-5
RV201	A-10
RV202	A-10
RV203	B-9
RV204	A-9
RV205	D-9
RV206	B-8
RV207	B-7
RV208	C-6
RV209	B-8
RV210	B-8
RV212	C-8
RV213	H-7
RV214	F-6
RV215	E-7
RV216	H-9
RV217	E-7
RV219	D-9
RV220	G-8
RV221	H-10
S101	F-3
S201	F-10
TP1	C-2
TP2	E-2
TP3	D-3
TP4	B-3
TP5	B-1
TP6	B-1
TP7	B-3
TP8	B-5
TP9	D-5
TP10	D-4
TP11	E-2
TP12	F-2
TP13	F-4
TP14	E-2
TP15	H-3
TP16	H-4
TP17	F-5
TP201	C-10
TP202	B-10
TP203	B-10
TP204	B-9
TP205	A-9
TP206	A-9
TP207	B-9
TP208	C-10
TP209	C-8
TP210	A-6
TP211	A-6
TP212	C-6
TP213	C-7
TP214	J-10
TP215	J-10
TP216	J-7
TP217	J-6
TP218	G-8
TP219	F-8
TP220	J-8
TP221	L-9
TP222	H-8
TP223	K-9
TP224	H-10
TP225	H-10
TP226	E-10
TP227	G-9
TP228	H-9
TP229	L-10
TP230	L-9
TP231	G-9
TP232	A-8
TP233	D-10
TP234	E-7
TP235	F-8
X1	H-3
X2	J-3
X3	K-3
X4	K-3
X201	J-7
X202	K-7

Note:The *-marked components are mounted on B SIDE (Solder Side).





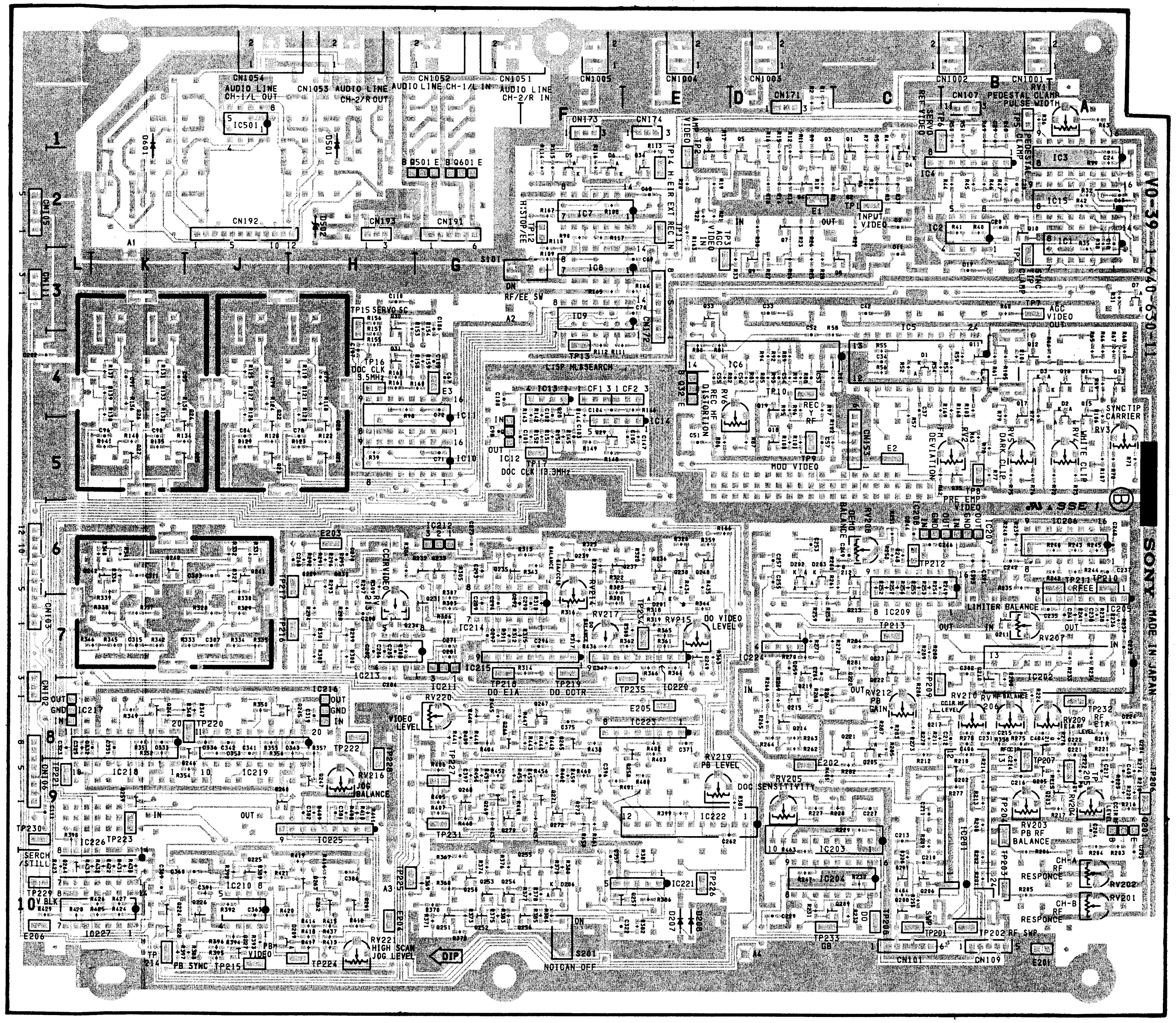
VO-39

–A SIDE–

1-640-630-11

VO-9600H

A SIDE is the same as Component Side.



VO-39

–B SIDE–

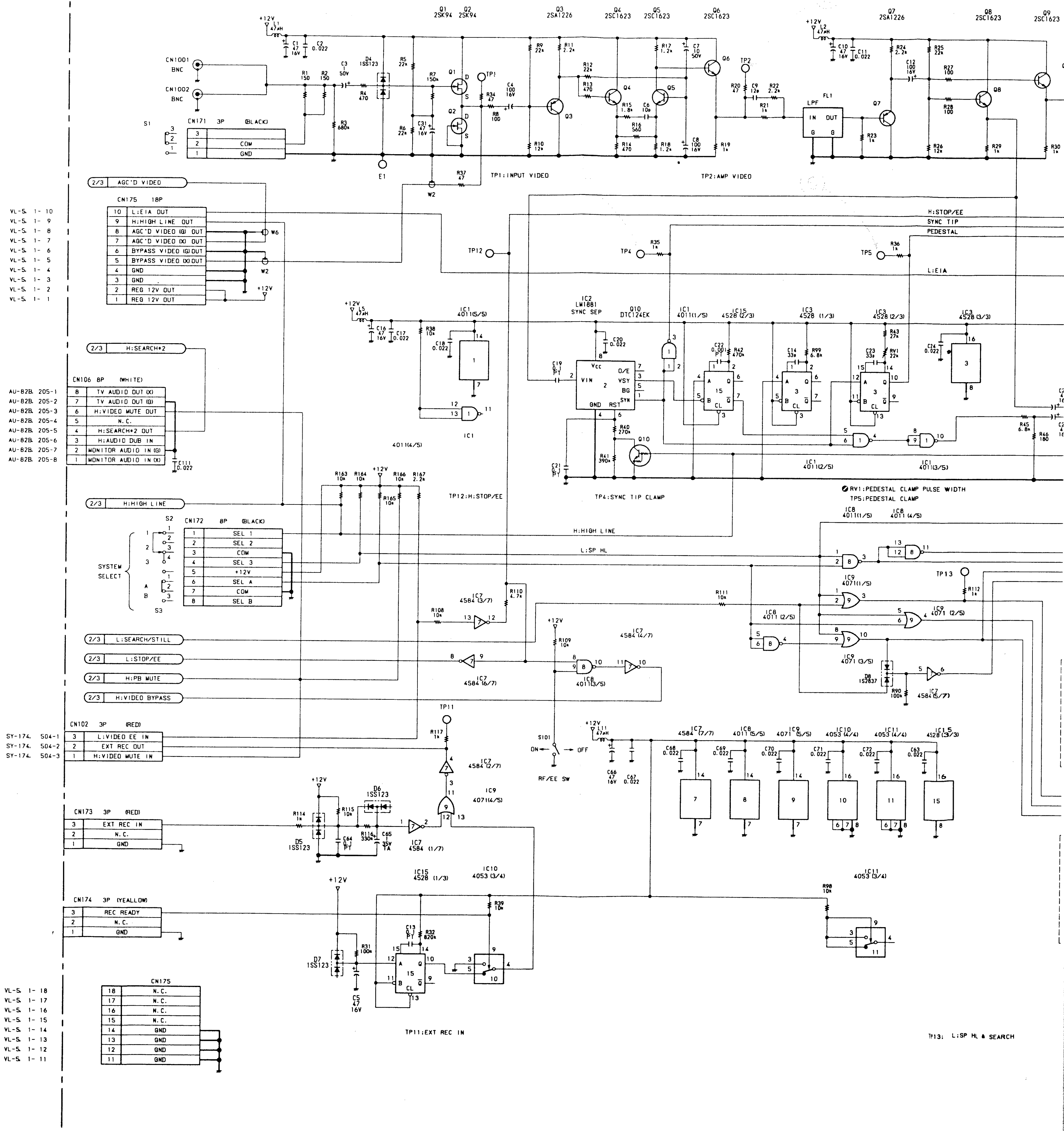
1-640-630-11

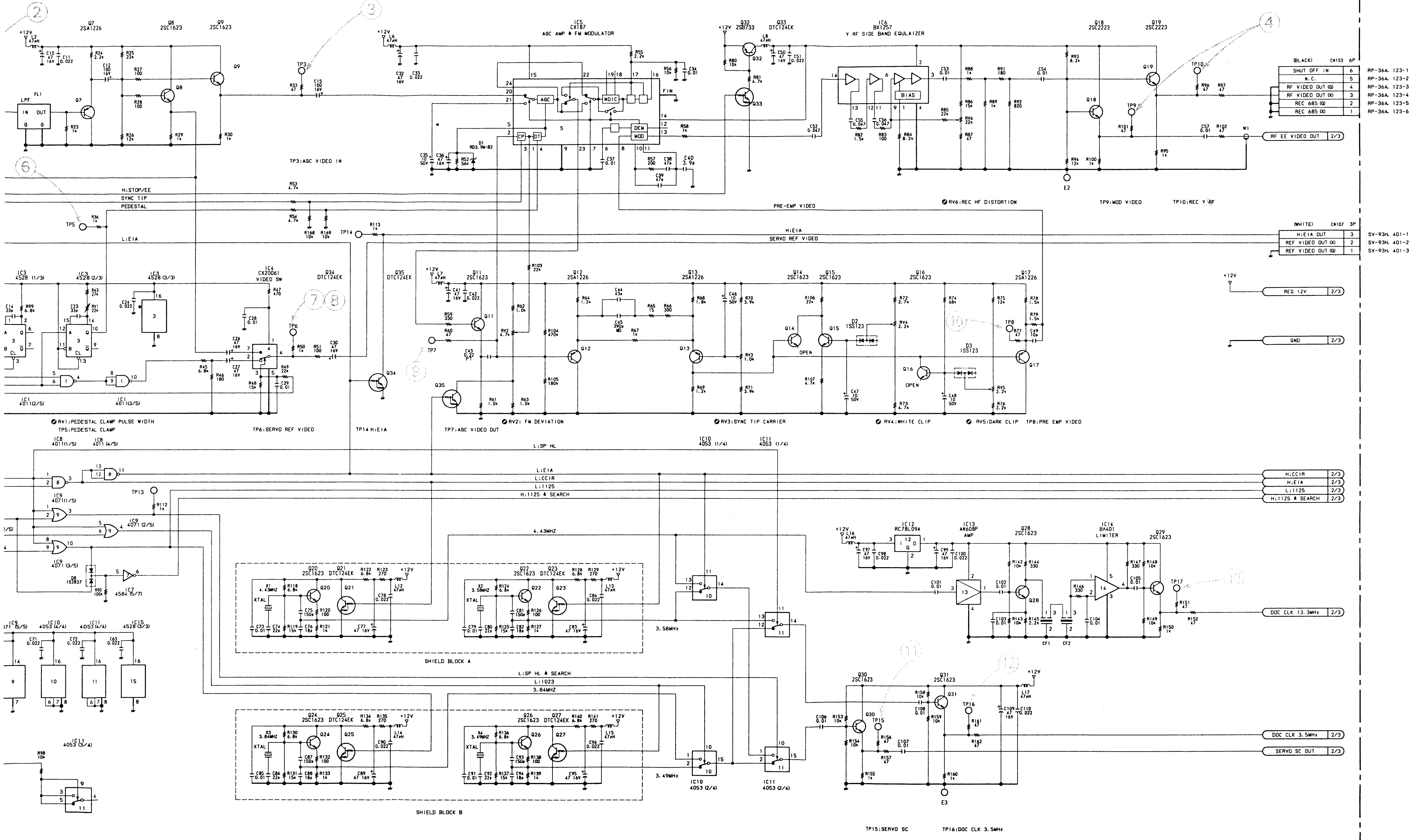
VO-9600H

B SIDE is the same as Solder Side.

VO-39 (1/3): Y REC/PB

(J) S/N 10041 and higher
(UC) S/N 10061 and higher
(EK) S/N 10041 and higher


Q1 2SK94
Q2 2SK94
Q3 2SA1226
Q4 2SC1623
Q5 2SC1623
Q6 2SC1623
Q7 2SA1226
Q8 2SC1623
Q9 2SC1623
CN1001 BNC
CN1002 BNC
S1
CN171 3P (BLACK)
COM
GND
TP1:INPUT VIDEO
TP2:AMP VIDEO
LPF
FL1
IN OUT
E1
W2
W6
2/3 AGC'D VIDEO
CN175 18P
10 L:EIA OUT
9 H:HIGH LINE OUT
8 AGC'D VIDEO (G) OUT
7 AGC'D VIDEO (X) OUT
6 BYPASS VIDEO (G) OUT
5 BYPASS VIDEO (X) OUT
4 GND
3 GND
2 REG 12V OUT
1 REG 12V OUT
VL-S. 1-10
VL-S. 1-9
VL-S. 1-8
VL-S. 1-7
VL-S. 1-6
VL-S. 1-5
VL-S. 1-4
VL-S. 1-3
VL-S. 1-2
VL-S. 1-1
H:STOP/EE
SYNC TIP
PEDESTAL
L:EIA
TP12
TP4
TP5
IC2 LM1881 SYNC SEP
Q10 DTC124EK
IC1 4011(5/5)
IC1 4011(1/5)
IC15 4528 (2/3)
IC3 4528 (1/3)
IC3 4528 (2/3)
IC3 4528 (3/3)
VIN
GND RST
O/E
VSY
BG
SYN
IC1 4011(4/5)
IC1 4011(2/5)
IC1 4011(3/5)
RV1:PEDESTAL CLAMP PULSE WIDTH
TP5:PEDESTAL CLAMP
TP4:SYNC TIP CLAMP
TP12:H:STOP/EE
2/3 H:SEARCH×2
CN106 8P (WHITE)
8 TV AUDIO OUT (X)
7 TV AUDIO OUT (G)
6 H:VIDEO MUTE OUT
5 N.C.
4 H:SEARCH×2 OUT
3 H:AUDIO DUB IN
2 MONITOR AUDIO IN (G)
1 MONITOR AUDIO IN (X)
AU-82B. 205-1
AU-82B. 205-2
AU-82B. 205-3
AU-82B. 205-4
AU-82B. 205-5
AU-82B. 205-6
AU-82B. 205-7
AU-82B. 205-8
2/3 H:HIGH LINE
S2
CN172 8P (BLACK)
1 SEL 1
2 SEL 2
3 COM
4 SEL 3
5 +12V
6 SEL A
7 COM
8 SEL B
SYSTEM SELECT
S3
H:HIGH LINE
L:SP HL
IC8 4011(1/5)
IC8 4011(4/5)
IC9 4071(1/5)
IC9 4071 (2/5)
IC9 4071 (3/5)
IC8 4011 (2/5)
IC8 4011(3/5)
IC7 4584 (3/7)
IC7 4584 (4/7)
IC7 4584 (6/7)
IC7 4584 (5/7)
IC7 4584 (2/7)
IC7 4584 (1/7)
IC9 4071(4/5)
TP13
D8 1SS237
2/3 L:SEARCH/STILL
2/3 L:STOP/EE
2/3 H:PB MUTE
2/3 H:VIDEO BYPASS
CN102 3P (RED)
3 L:VIDEO EE IN
2 EXT REC OUT
1 H:VIDEO MUTE IN
SY-174. 504-1
SY-174. 504-2
SY-174. 504-3
TP11
S101
ON OFF
RF/EE SW
IC7 4584 (7/7)
IC8 4011 (5/5)
IC9 4071 (5/5)
IC10 4053 (4/4)
IC11 4053 (4/4)
IC15 4528 (3/3)
CN173 3P (RED)
3 EXT REC IN
2 N.C.
1 GND
D5 1SS123
D6 1SS123
D7 1SS123
IC15 4528 (1/3)
IC10 4053 (3/4)
IC11 4053 (3/4)
CN174 3P (YEALLOW)
3 REC READY
2 N.C.
1 GND
TP11:EXT REC IN
TP13: L:SP HL & SEARCH
CN175
18 N.C.
17 N.C.
16 N.C.
15 N.C.
14 GND
13 GND
12 GND
11 GND
VL-S. 1-18
VL-S. 1-17
VL-S. 1-16
VL-S. 1-15
VL-S. 1-14
VL-S. 1-13
VL-S. 1-12
VL-S. 1-11
+12V

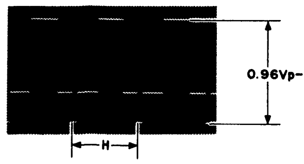

Q7 2SA1226
Q8 2SC1623
Q9 2SC1623
LPF FL1
IN OUT
TP3:AGC VIDEO IN
IC5 CX187 AGC AMP & FM MODULATOR
AGC
NOIC
FIN
DEM
MOD
CP
DT
+12V 2SB733 Q32
Q33 DTC124EK
IC6 BX1257 Y RF SIDE BAND EQUALIZER
BIAS
Q18 2SC2223
Q19 2SC2223
TP9
TP10
(BLACK) CN153 6P
SHUT OFF IN 6
N.C. 5
RF VIDEO OUT (Q) 4
RF VIDEO OUT (X) 3
REC 685 (Q) 2
REC 685 (X) 1
RP-36A 123-1
RP-36A 123-2
RP-36A 123-3
RP-36A 123-4
RP-36A 123-5
RP-36A 123-6
RF EE VIDEO OUT 2/3
E2
RV6:REC HF DISTORTION
TP9:MOD VIDEO
TP10:REC Y RF
H:STOP/EE
SYNC TIP
PEDESTAL
TP5
L:EIA
PRE-EMP VIDEO
TP14
H:EIA
SERVO REF VIDEO
(WHITE) CN107 3P
H:EIA OUT 3
REF VIDEO OUT (X) 2
REF VIDEO OUT (Q) 1
SV-93H 401-1
SV-93H 401-2
SV-93H 401-3
IC3 4528 (1/3)
IC3 4528 (2/3)
IC3 4528 (3/3)
IC4 CX20061 VIDEO SW
Q34 DTC124EK
Q35 DTC124EK
Q11 2SC1623
Q12 2SA1226
Q13 2SA1226
Q14 2SC1623
Q15 2SC1623
Q16 2SC1623
Q17 2SA1226
D2 1SS123
D3 1SS123
OPEN
TP6
TP7
TP8
+12V
REG 12V 2/3
GND 2/3
IC1 4011 (2/5)
IC1 4011 (3/5)
RV1:PEDESTAL CLAMP PULSE WIDTH
TP5:PEDESTAL CLAMP
TP6:SERVO REF VIDEO
TP14 H:EIA
TP7:AGC VIDEO OUT
RV2: FM DEVIATION
RV3:SYNC TIP CARRIER
RV4:WHITE CLIP
RV5:DARK CLIP
TP8:PRE EMP VIDEO
IC8 4011 (1/5)
IC8 4011 (4/5)
IC10 4053 (1/4)
IC11 4053 (1/4)
L:SP HL
L:EIA
L:CCIR
L:1125
H:1125 & SEARCH
TP13
IC9 4071 (1/5)
IC9 4071 (2/5)
IC9 4071 (3/5)
IC7 4584 (5/7)
D8 1SS837
H:CCIR 2/3
H:EIA 2/3
L:1125 2/3
H:1125 & SEARCH 2/3
4.43MHZ
Q20 2SC1623
Q21 DTC124EK
Q22 2SC1623
Q23 DTC124EK
X1 4.43MHZ
X2 3.58MHZ
XTAL
3.58MHz
SHIELD BLOCK A
IC12 RC78L09A
IC13 AN608P AMP
Q28 2SC1623
IC14 BA401 LIMITER
Q29 2SC1623
TP17
CF1
CF2
DOC CLK 13.3MHz 2/3
IC9 4071 (5/5)
IC10 4053 (4/4)
IC11 4053 (4/4)
IC15 4528 (3/3)
L:SP HL & SEARCH
L:1023
3.84MHZ
Q24 2SC1623
Q25 DTC124EK
Q26 2SC1623
Q27 DTC124EK
X3 3.84MHZ
X4 3.49MHZ
3.49MHz
IC10 4053 (2/4)
IC11 4053 (2/4)
IC11 4053 (3/4)
SHIELD BLOCK B
Q30 2SC1623
Q31 2SC1623
TP15
TP16
E3
DOC CLK 3.5MHz 2/3
SERVO SC OUT 2/3
TP15:SERVO SC
TP16:DOC CLK 3.5MHz
②
③
④
⑥
⑦⑧
⑨
⑩
⑪
⑫
⑬

TP13: L:SP HL & SEARCH

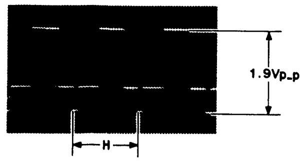
VO-39 (1/3)

1-640-630-12
VO-9600H

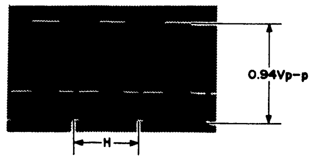
1
,EE



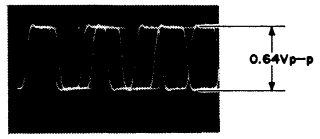
2
,EE



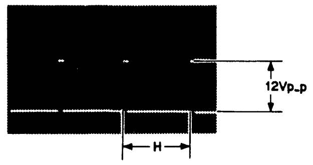
3
,EE



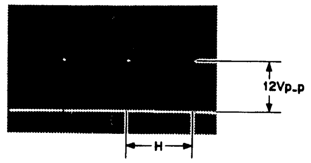
9,10
,EE



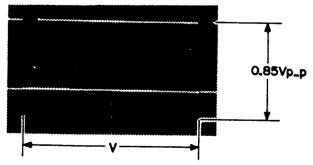
4
,EE



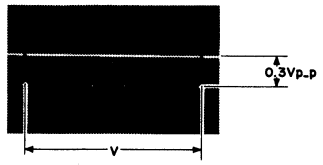
5
,EE



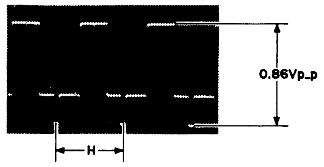
-A
,EE
5/60,
5/50)



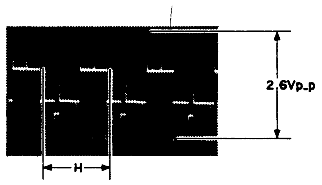
⑧ TP6-B
REC,EE
(1023/60,1049/60,
1125/60,1249/50)



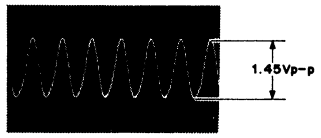
⑨ TP7
REC,EE



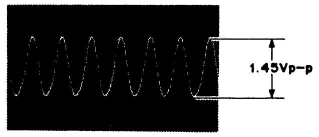
⑩ TP8
REC,EE



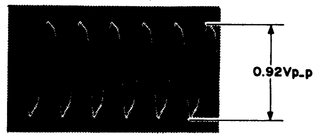
⑪ TP15
REC,EE,PB



⑫ TP16
REC,EE,PB



⑬ TP17
REC,EE,PB
(625/50,1249/50)



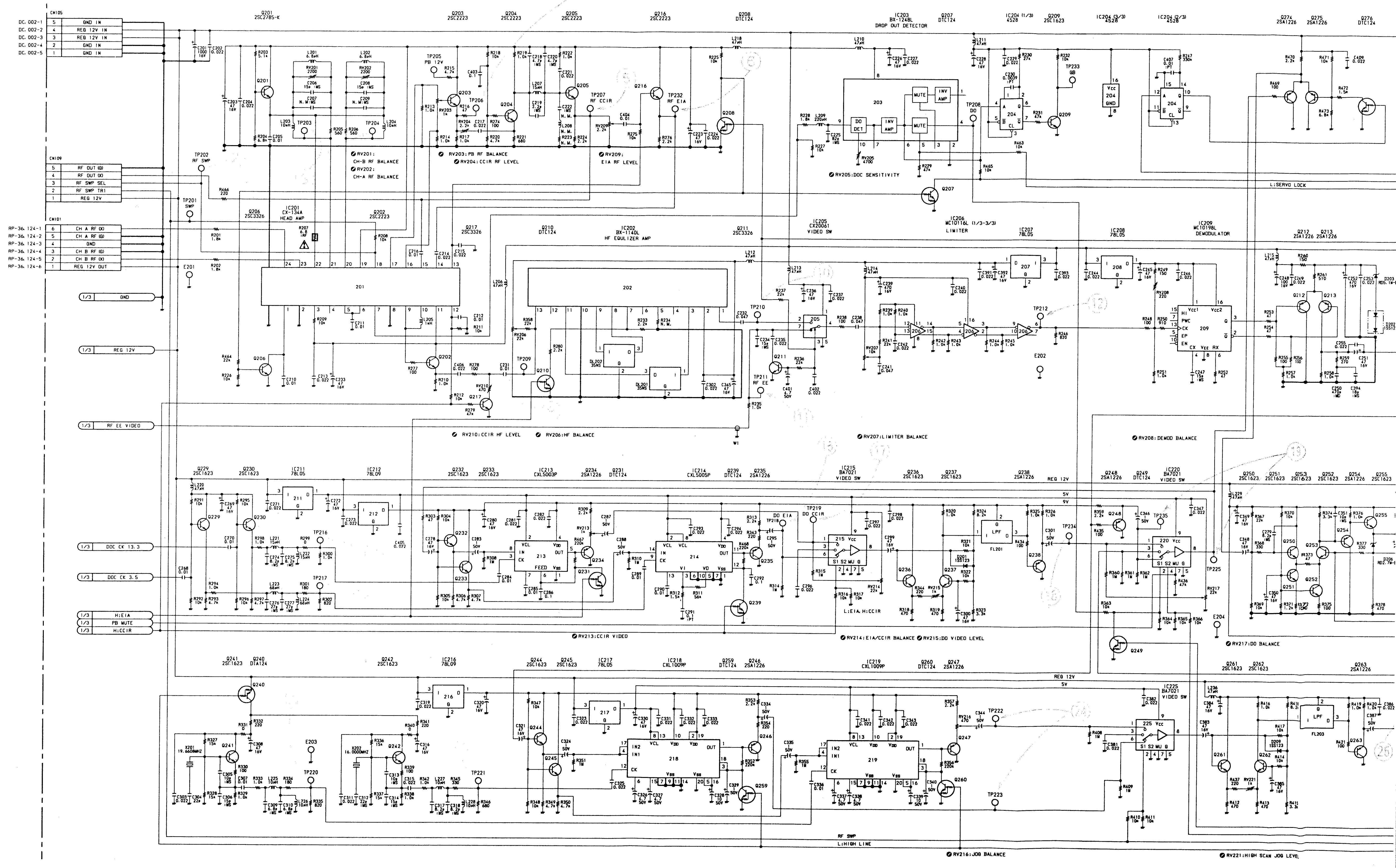
Supplemental Explanations of Waveform Photographs on VO-39 Board

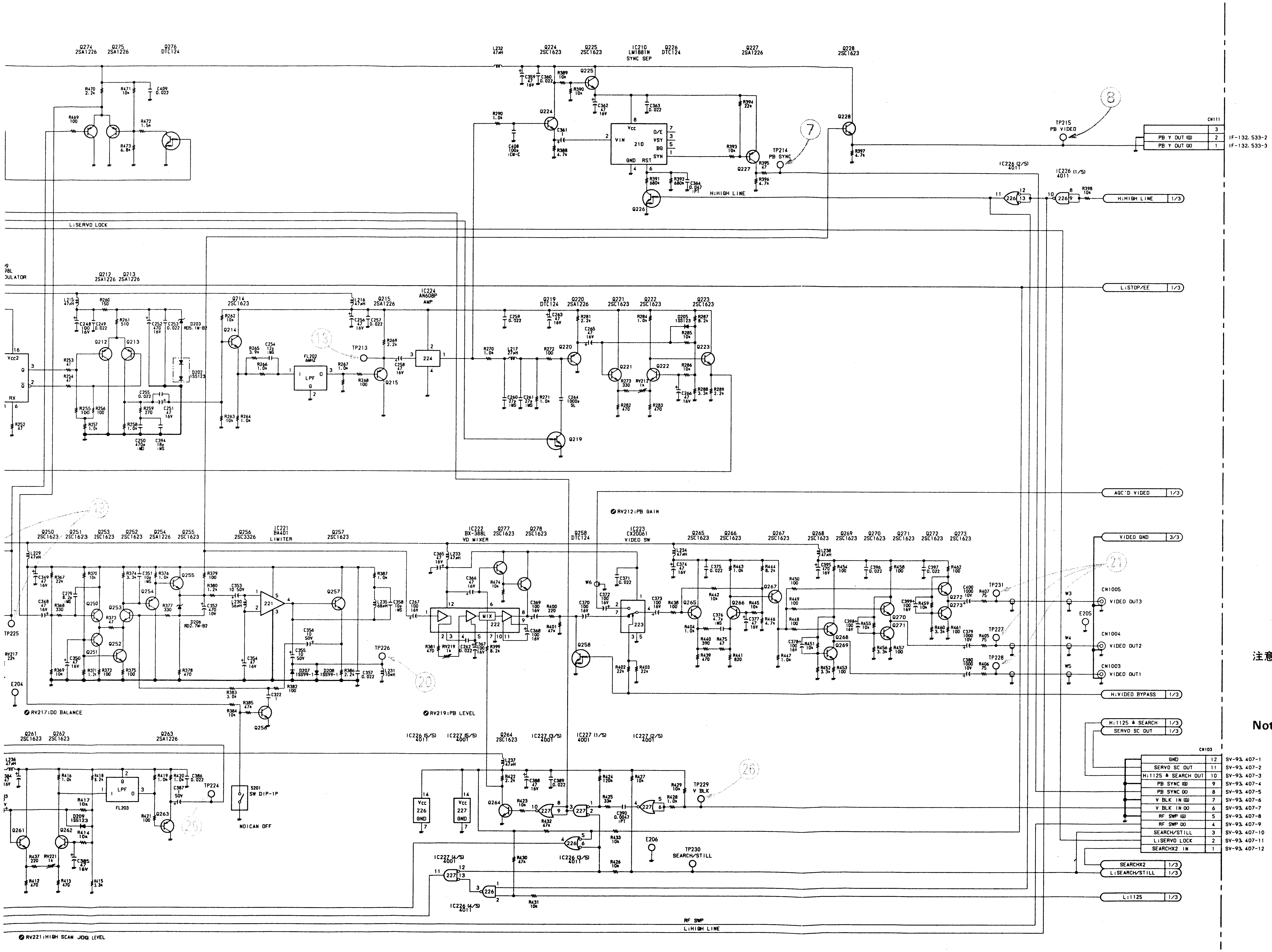
TP NO.	525/60		625/50		1023/60		1049/60		1125/60		1249/50	
	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB
TP1	◎	✻	○	✻	○	✻	○	✻	○	✻	○	✻
TP2	◎	✻	○	✻	○	✻	○	✻	○	✻	○	✻
TP3	◎	✻	○	✻	○	✻	○	✻	○	✻	○	✻
TP4	◎	✻	○	✻	○	✻	○	✻	○	✻	○	✻
TP5	◎	✻	○	✻	○	✻	○	✻	○	✻	○	✻
TP6	◎-A	✻	○-A	✻	○-B	✻	◎-B	✻	○-B	✻	○-B	✻
TP7	◎	✻	○	✻	○	✻	○	✻	○	✻	○	✻
TP8	◎	✻	○	✻	○	✻	○	✻	○	✻	○	✻
TP9	◎	–	◎	–	◎	–	◎	–	◎	–	◎	–
TP10	◎	–	◎	–	◎	–	◎	–	◎	–	◎	–
TP11	✻	✻	✻	✻	✻	✻	✻	✻	✻	✻	✻	✻
TP12	H	L	H	L	H	L	H	L	H	L	H	L
TP13	✻	✻	✻	✻	✻	✻	✻	✻	✻	✻	✻	✻
TP14	H	H	L	L	H	H	H	H	H	H	L	L
TP15	◎	◎	○	○	○	○	○	○	○	○	○	○
TP16	◎	◎	–	–	○	○	○	○	○	○	–	–
TP17	–	–	◎	◎	–	–	–	–	–	–	◎	◎

◎ ; Photograph
○ ; Waveform is similar to the photograph.
– ; No signal
✻ ; Waveform differs depending on mode.
H ; High level (about 12V)
L ; Low level (about 0V)

VO-39 (2/3): Y REC/PB

(J) S/N 10041 and higher
(UC) S/N 10061 and higher
(EK) S/N 10041 and higher


CN105
GND IN
REG 12V IN
REG 12V IN
GND IN
GND IN
CN109
RF OUT (Q)
RF OUT (I)
RF SWP SEL
RF SWP TR1
REG 12V
CN101
CH A RF (X)
CH A RF (G)
GND
CH B RF (G)
CH B RF (X)
REG 12V OUT
IC201 CX-134A HEAD AMP
IC202 BX-1140L HF EQULIZER AMP
IC203 BX-1248L DROP OUT DETECTOR
IC204 (1/3) 4528
IC204 (2/3) 4528
IC204 (3/3) 4528
IC205 CX20061 VIDEO SW
IC206 MC10116L (1/3-3/3) LIMITER
IC207 78L05
IC208 78L05
IC209 MC10198L DEMODULATOR
IC211 78L05
IC212 78L09
IC213 CXL5003P
IC214 CXL5005P
IC215 BA7021 VIDEO SW
IC216 78L09
IC217 78L05
IC218 CXL1009P
IC219 CXL1009P
IC220 BA7021 VIDEO SW
IC225 BA7021 VIDEO SW
RV201: CH-B RF BALANCE
RV202: CH-A RF BALANCE
RV203: PB RF BALANCE
RV204: CCIR RF LEVEL
RV209: EIA RF LEVEL
RV205: DOC SENSITIVITY
RV207: LIMITER BALANCE
RV208: DEMOD BALANCE
RV210: CCIR HF LEVEL
RV206: HF BALANCE
RV213: CCIR VIDEO
RV214: EIA/CCIR BALANCE
RV215: DO VIDEO LEVEL
RV217: DO BALANCE
RV216: JOG BALANCE
RV221: HIGH SCAN JOG LEVEL
L: SERVO LOCK
L: EIA H: CCIR
RF EE VIDEO
DOC CK 13.3
DOC CK 3.5
H: EIA
PB MUTE
H: CCIR
REG 12V
5V
9V
RF SWP
L: HIGH LINE
X201 19.6608MHz
X202 16.0000MHz
FL201
FL203
LPF


IC210 LM1881N SYNC SEP
TP215 PB VIDEO
TP214 PB SYNC
CN111
PB Y OUT (G)
PB Y OUT (X)
IF-132, 533-2
IF-132, 533-3
H:HIGH LINE
L:SERVO LOCK
L:STOP/EE
IC224 AN608P AMP
TP213
LPF
AGC'D VIDEO
RV212:PB GAIN
IC221 BA401 LIMITER
IC222 BX-388L VD MIXER
IC223 CX20061 VIDEO SW
VIDEO GND
TP225
TP226
TP231
TP227
TP228
CN1005 VIDEO OUT3
CN1004 VIDEO OUT2
CN1003 VIDEO OUT1
E205
E204
H:VIDEO BYPASS
RV217:DO BALANCE
RV219:PB LEVEL
H:1125 & SEARCH
SERVO SC OUT
CN103
GND
SERVO SC OUT
H:1125 & SEARCH OUT
PB SYNC (G)
PB SYNC (X)
V BLK IN (G)
V BLK IN (X)
RF SWP (G)
RF SWP (X)
SEARCH/STILL
L:SERVO LOCK
SEARCHX2 IN
SV-93, 407-1
SV-93, 407-12
S201 SW DIP-1P
NOICAN OFF
FL203
TP224
TP229 V BLK
E206
TP230 SEARCH/STILL
SEARCHX2
L:SEARCH/STILL
L:1125
RF SWP
L:HIGH LINE
RV221:HIGH SCAN JOG LEVEL

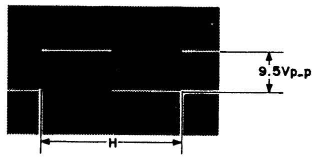
注意　：⚠印のついた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

Note : The ⚠-marked components are critical to safety.
Replace only with same components as specified.

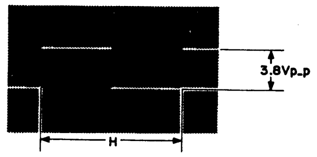
VO-39 (2/3)

1-640-630-12
VO-9600H

① TP201
REC,PB

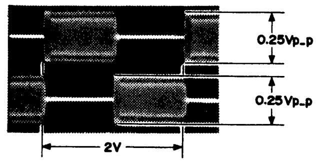


② TP202
REC,PB

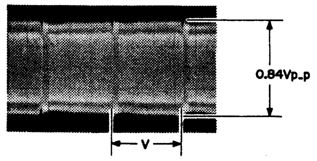


③ TP203
PB(525/60)

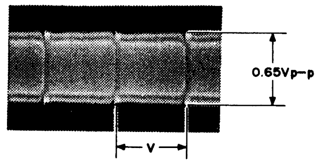
TP204
PB(525/60)



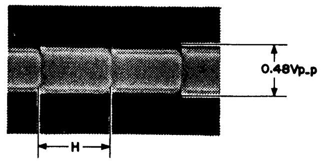
④ TP206
PB(525/60)



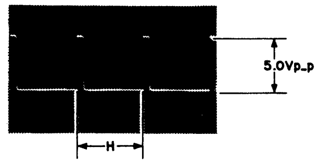
⑤ TP207
PB(525/60)



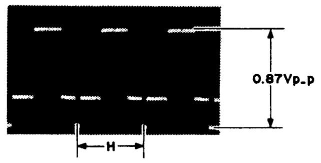
⑥ TP232
PB(525/60)



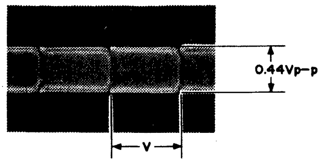
⑦ TP214
REC,EE,PB



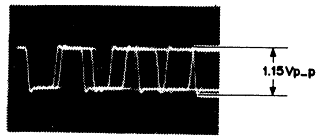
⑧ TP215
REC,EE,PB



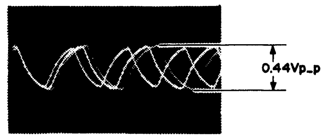
⑨ TP209
PB(525/60)



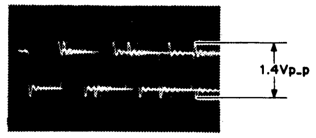
⑩ TP210
PB



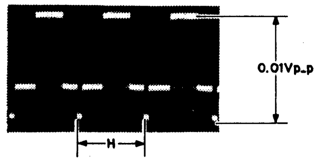
⑪ TP211
REC,EE



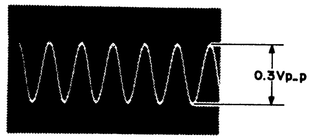
⑫ TP212
REC,EE,PB



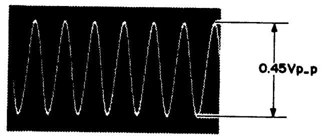
⑬ TP213
REC,EE,PB



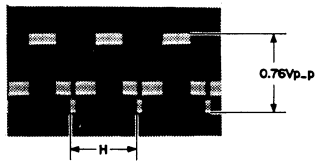
⑭ TP216
REC,EE,PB
(625/50)



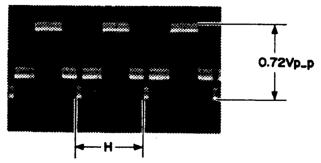
⑮ TP217
REC,EE,PB
(525/60)



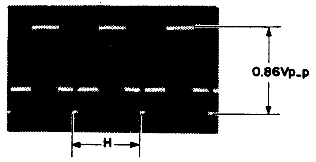
⑯ TP218
PB(525/60)



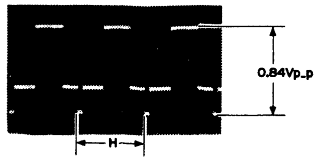
⑰ TP219
PB(625/60)



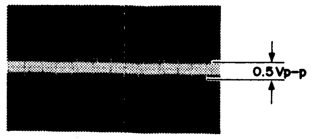
⑱ TP234
REC,EE,PB



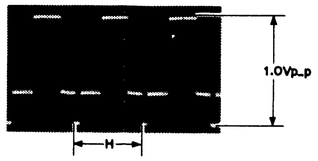
⑲ TP235,
TP225
REC,EE,PB



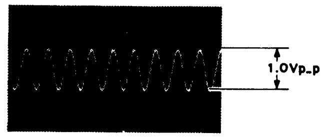
⑳ TP226
REC,EE,PB



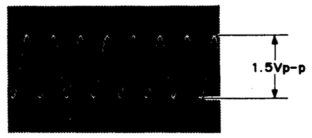
㉑ TP227,228,
TP231
REC,EE,PB



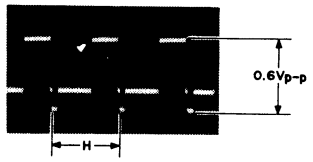
㉒ TP220
REC,EE,PB
(1023/60,
1049/60,
1125/60,
1249/50)



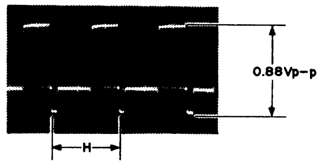
㉓ TP221
REC,EE,PB
(1023/60,
1049/60,
1125/60,
1249/50)



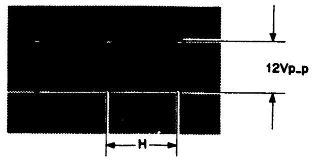
㉔ TP222,223
PB(1023/60,
1049/60,
1125/60,
1249/50)



㉕ TP224
PB(1023/60,
1049/60,
1125/60,
1249/50)



㉖ TP229
REC,PB



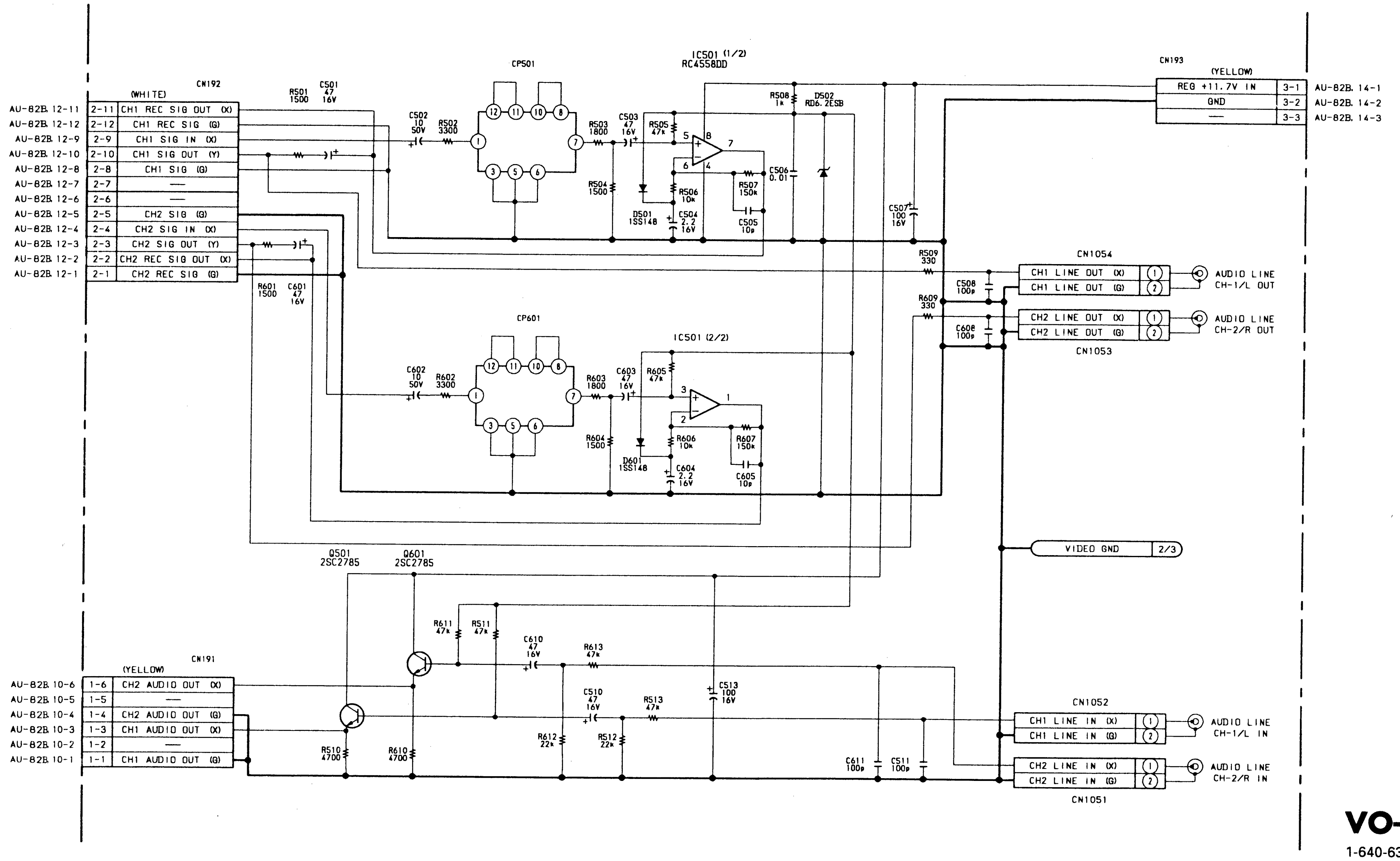
Supplemental Explanations of Waveform Photographs on VO-39 Board

TP NO.	525/60		625/50		1023/60		1049/60		1125/60		1249/50	
	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB
TP201	◎/–	◎	○/–	○	◎/–	○	◎/–	○	◎/–	○	○/–	○
TP202	◎/–	◎	○/–	○	◎/–	○	◎/–	○	◎/–	○	○/–	○
TP203	*	◎	*	○	*	○	*	○	*	○	*	○
TP204	*	◎	*	○	*	○	*	○	*	○	*	○
TP205	*	*	*	*	*	*	*	*	*	*	*	*
TP206	*	◎	*	○	*	○	*	○	*	○	*	○
TP207	*	◎	*	○	*	○	*	○	*	○	*	○
TP209	*	◎	*	○	*	○	*	○	*	○	*	○
TP210	*	◎	*	○	*	○	*	○	*	○	*	○
TP211	◎	*	○	*	○	*	○	*	○	*	○	*
TP212	○	◎	○	○	○	○	○	○	○	○	○	○
TP213	○	◎	○	○	○	○	○	○	○	○	○	○
TP214	○	◎	○	○	○	○	○	○	○	○	○	○
TP215	○	◎	○	○	○	○	○	○	○	○	○	○
TP216	–	–	◎	◎	–	–	–	–	–	–	◎	◎
TP217	◎	◎	–	–	○	○	○	○	○	○	–	–
TP218	*	◎	–	–	*	○	*	○	*	○	–	–
TP219	–	–	*	◎	–	–	–	–	–	–	*	○
TP220	–	–	–	–	◎	◎	◎	◎	◎	◎	◎	◎
TP221	–	–	–	–	◎	◎	◎	◎	◎	◎	◎	◎
TP222	–	–	–	–	*	○	*	◎	*	○	*	○
TP223	–	–	–	–	*	○	*	◎	*	○	*	○
TP224	–	–	–	–	*	○	*	◎	*	○	*	○
TP225	○	◎	○	○	○	○	○	○	○	○	○	○
TP226	○	◎	○	○	○	○	○	○	○	○	○	○
TP227	○	◎	○	○	○	○	○	○	○	○	○	○
TP228	○	◎	○	○	○	○	○	○	○	○	○	○
TP229	◎/–	◎	○/–	○	◎/–	○	◎/–	○	◎/–	○	○/–	○
TP230	*	*	*	*	*	*	*	*	*	*	*	*
TP231	○	◎	○	○	○	○	○	○	○	○	○	○
TP232	*	◎	*	○	*	○	*	○	*	○	*	○
TP233	*	*	*	*	*	*	*	*	*	*	*	*
TP234	○	◎	○	○	○	○	○	○	○	○	○	○
TP235	○	◎	○	○	○	○	○	○	○	○	○	○

◎ ; Photograph
○ ; Waveform is similar to the photograph.
– ; No signal
* ; Waveform differs depending on mode.

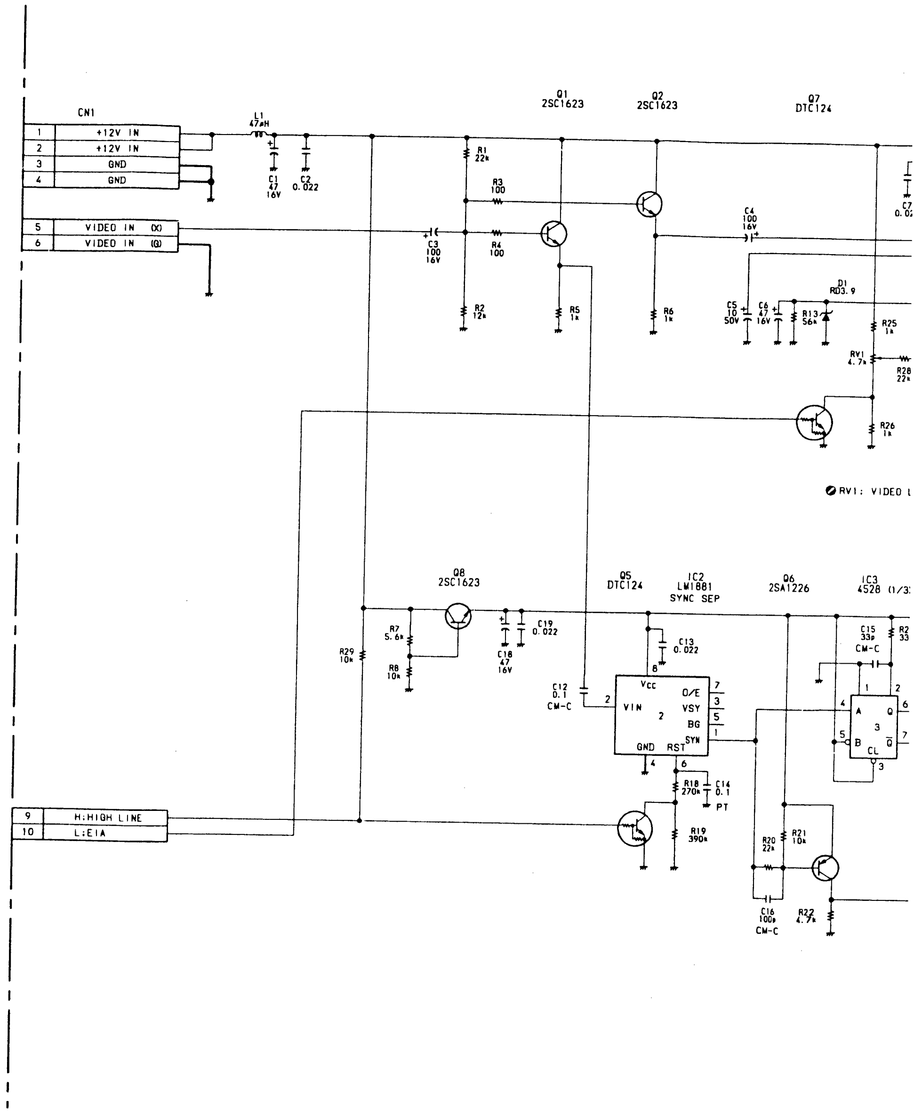
VO-39 (3/3): Y REC/PB (Y/C SEPARATOR)
VL-5: EE LEVEL

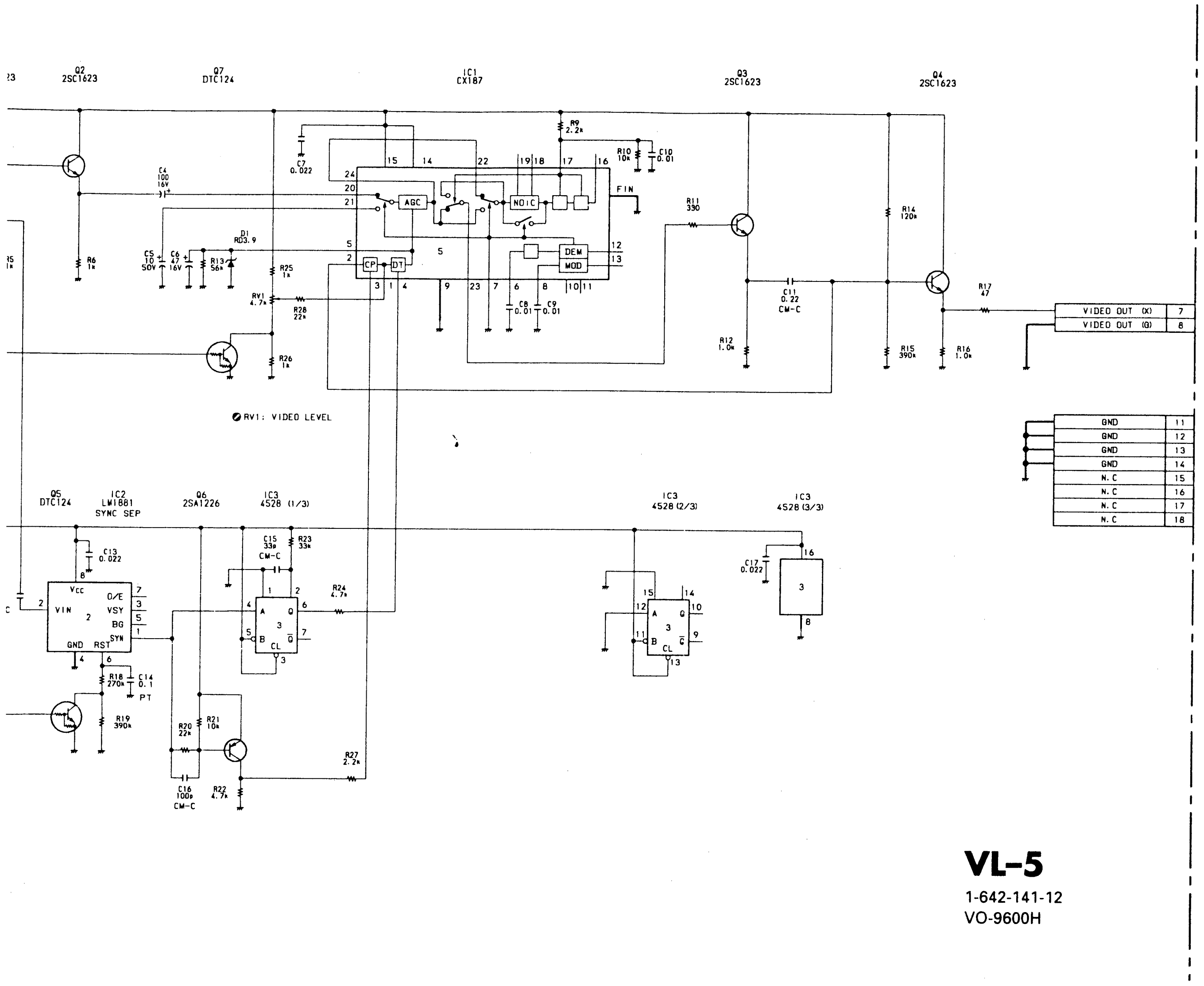
(J) S/N 10041 and higher
(UC) S/N 10061 and higher
(EK) S/N 10041 and higher


CN192
(WHITE)
AU-82B 12-11 | 2-11 | CH1 REC SIG OUT (X)
AU-82B 12-12 | 2-12 | CH1 REC SIG (G)
AU-82B 12-9 | 2-9 | CH1 SIG IN (X)
AU-82B 12-10 | 2-10 | CH1 SIG OUT (Y)
AU-82B 12-8 | 2-8 | CH1 SIG (G)
AU-82B 12-7 | 2-7 | —
AU-82B 12-6 | 2-6 | —
AU-82B 12-5 | 2-5 | CH2 SIG (G)
AU-82B 12-4 | 2-4 | CH2 SIG IN (X)
AU-82B 12-3 | 2-3 | CH2 SIG OUT (Y)
AU-82B 12-2 | 2-2 | CH2 REC SIG OUT (X)
AU-82B 12-1 | 2-1 | CH2 REC SIG (G)
R501 1500
C501 47 16V
R601 1500
C601 47 16V
CP501
CP601
C502 10 50V
R502 3300
R503 1800
C503 47 16V
R504 1500
R505 47k
D501 1SS148
R506 10k
C504 2.2 16V
R507 150k
C505 10p
IC501 (1/2) RC4558DD
R508 1k
D502 RD6.2ESB
C506 0.01
C507 100 16V
C602 10 50V
R602 3300
R603 1800
C603 47 16V
R604 1500
R605 47k
D601 1SS148
R606 10k
C604 2.2 16V
R607 150k
C605 10p
IC501 (2/2)
CN193
(YELLOW)
REG +11.7V IN | 3-1 | AU-82B 14-1
GND | 3-2 | AU-82B 14-2
— | 3-3 | AU-82B 14-3
R509 330
C508 100p
R609 330
C608 100p
CN1054
CH1 LINE OUT (X)
CH1 LINE OUT (G)
AUDIO LINE CH-1/L OUT
CH2 LINE OUT (X)
CH2 LINE OUT (G)
AUDIO LINE CH-2/R OUT
CN1053
VIDEO GND 2/3
Q501 2SC2785
Q601 2SC2785
R611 47k
R511 47k
C610 47 16V
R613 47k
C510 47 16V
R513 47k
C513 100 16V
R612 22k
R512 22k
R510 4700
R610 4700
C611 100p
C511 100p
CN191
(YELLOW)
AU-82B 10-6 | 1-6 | CH2 AUDIO OUT (X)
AU-82B 10-5 | 1-5 | —
AU-82B 10-4 | 1-4 | CH2 AUDIO OUT (G)
AU-82B 10-3 | 1-3 | CH1 AUDIO OUT (X)
AU-82B 10-2 | 1-2 | —
AU-82B 10-1 | 1-1 | CH1 AUDIO OUT (G)
CN1052
CH1 LINE IN (X)
CH1 LINE IN (G)
AUDIO LINE CH-1/L IN
CH2 LINE IN (X)
CH2 LINE IN (G)
AUDIO LINE CH-2/R IN
CN1051

VO-39 (3/3)

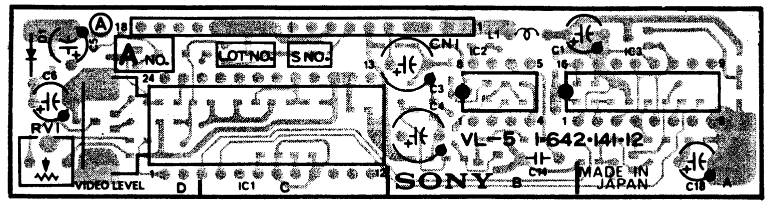
1-640-630-12
VO-9600H


CN1
1 +12V IN
2 +12V IN
3 GND
4 GND
5 VIDEO IN (X)
6 VIDEO IN (G)
L1 47µH
C1 47 16V
C2 0.022
R1 22k
R3 100
C3 100 16V
R4 100
R2 12k
Q1 2SC1623
Q2 2SC1623
Q7 DTC124
R5 1k
R6 1k
C4 100 16V
C7 0.0
C5 10 50V
C6 47 16V
R13 56k
D1 RD3.9
R25 1k
RV1 4.7k
R28 22k
R26 1k
RV1: VIDEO L
Q8 2SC1623
R7 5.6k
R8 10k
R29 10k
C18 47 16V
C19 0.022
Q5 DTC124
IC2 LM1881 SYNC SEP
C13 0.022
C12 0.1 CM-C
VCC
VIN
O/E
VSY
BG
SYN
GND
RST
R18 270k
C14 0.1
PT
R19 390k
Q6 2SA1226
IC3 4528 (1/3)
C15 33p CM-C
R2 33
A
B
Q
CL
R20 22k
R21 10k
C16 100p CM-C
R22 4.7k
9 H:HIGH LINE
10 L:EIA


Q2 2SC1623
Q7 DTC124
IC1 CX187
Q3 2SC1623
Q4 2SC1623
AGC
NOIC
DEM
MOD
CP
DT
FIN
C4 100 16V
C5 10 50V
C6 47 16V
D1 RD3.9
R13 56k
C7 0.022
R9 2.2k
R10 10k
C10 0.01
R11 330
R14 120k
C11 0.22 CM-C
R17 47
R12 1.0k
R15 390k
R16 1.0k
C8 0.01
C9 0.01
R25 1k
RV1 4.7k
R28 22k
R26 1k
R6 1k
RV1: VIDEO LEVEL
VIDEO OUT (X) 7
VIDEO OUT (G) 8
GND 11
GND 12
GND 13
GND 14
N.C 15
N.C 16
N.C 17
N.C 18
Q5 DTC124
IC2 LM1881 SYNC SEP
Q6 2SA1226
IC3 4528 (1/3)
IC3 4528 (2/3)
IC3 4528 (3/3)
C13 0.022
VCC
VIN
O/E
VSY
BG
SYN
GND
RST
R18 270k
C14 0.1 PT
R19 390k
C15 33p CM-C
R23 33k
R24 4.7k
R20 22k
R21 10k
C16 100p CM-C
R22 4.7k
R27 2.2k
C12 0.022

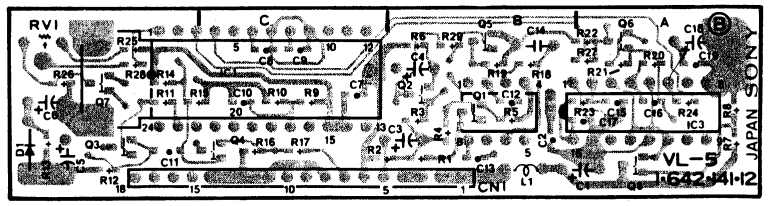
VL-5

1-642-141-12
VO-9600H


A
RV1
VIDEO LEVEL
LOT NO.
S NO.
CN1
IC1
IC2
VL-5 1-642-141-12
SONY
MADE IN JAPAN
C18

VL-5

–CONPONENT SIDE–
1-642-141-12
VO-9600H


RV1
B
IC3
R25
R26
R28
R14
R11
R13
C10
R10
R9
C8
C9
C7
Q5
Q6
Q1
Q3
Q7
R22
R27
R21
R20
C12
R18
R5
R3
R2
R1
R16
R17
R23
C17
C16
R24
C11
C13
R12
CN1
L1
VL-5 1-642-141-12
JAPAN SONY

VL-5

–SOLDERING SIDE–
1-642-141-12
VO-9600H

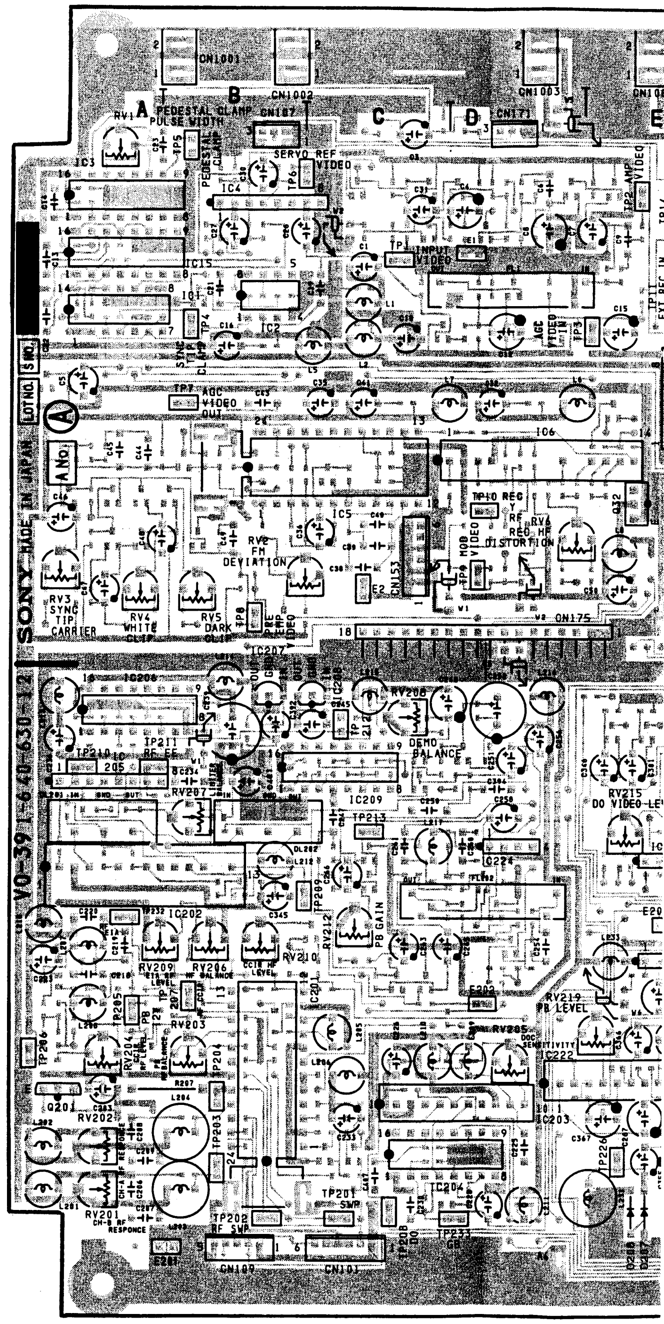
VO-39: Y REC/PB

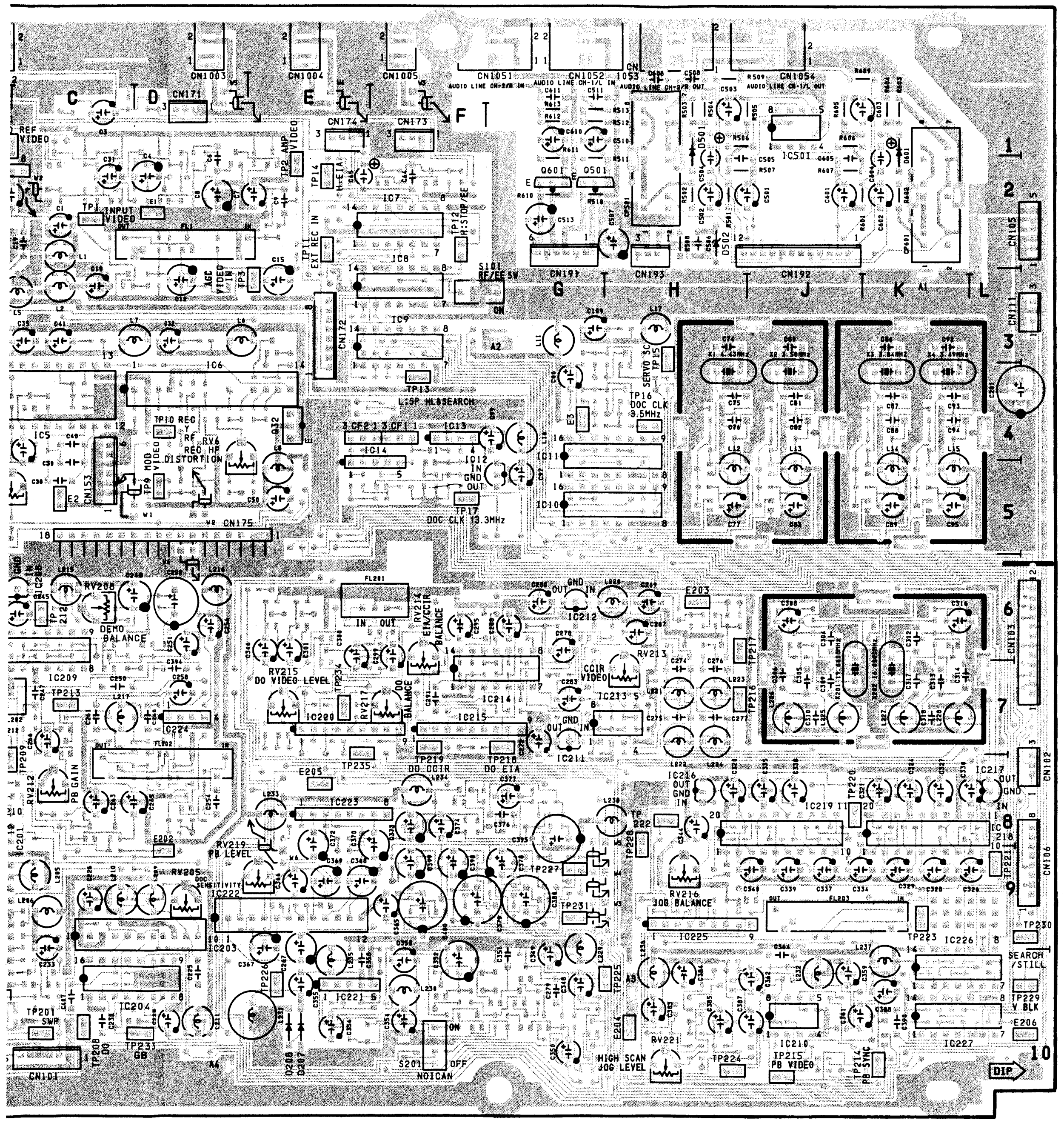
(J) S/N 10041 and higher
(UC) S/N 10061 and higher
(EK) S/N 10041 and higher

VO-39 (1-640-630-12)

CF1	F-4
CF2	E-4
CN101	C-10
CN102	L-8
CN103	L-6
CN105	L-2
CN106	L-9
CN107	B-1
CN109	B-10
CN111	L-3
CN153	C-5
CN171	D-1
CN172	E-3
CN173	F-1
CN174	E-1
CN191	G-3
CN192	J-3
CN193	H-3
DL201	A-7
DL202	C-7
*D1	C-4
*D2	A-4
*D3	B-4
*D4	C-2
*D5	F-2
*D6	F-2
*D7	A-3
*D201	E-7
*D202	D-6
*D203	D-6
*D205	C-9
*D206	F-10
D207	E-10
D208	E-10
*D209	H-10
D501	H-1
D502	H-2
D601	K-1
E1	D-2
E2	C-5
E3	G-4
E201	B-10
E202	D-8
E203	H-6
E204	H-10
E205	E-8
E206	L-10
FL1	D-2
FL201	F-6
FL202	D-7
FL203	J-9
IC1	B-2
IC2	B-3
IC3	A-1
IC4	B-2
IC5	C-4
IC6	D-4
IC7	F-2
IC8	F-2
IC9	F-3
IC10	G-5
IC11	G-4
IC12	F-4
IC13	F-4
IC14	F-4
IC15	B-2
IC201	C-9
IC202	B-8
IC203	D-10
IC204	D-10
IC205	A-6
IC206	A-6
IC207	B-6
IC208	C-6
IC209	C-7
IC210	J-10
IC211	G-8
IC212	G-6
IC213	H-7
IC214	G-7
IC215	F-7
IC216	H-8
IC217	L-8
IC218	L-8
IC219	J-8
IC220	E-7
IC221	E-10
IC222	D-9
IC223	E-8
IC224	D-7
IC225	H-9
IC226	K-9
IC227	K-10
IC501	J-1
L1	C-2
L2	C-3
L5	C-3
L6	D-3
L7	C-3
L8	E-4
L11	G-3
L12	H-4
L13	J-4
L14	K-4
L15	K-4
L16	G-4
L17	H-3
L201	A-10
L202	A-10
L203	B-10
L204	B-9
L205	C-9
L206	C-9
L207	A-8
L209	D-9
L210	C-9
L211	D10
L212	C-7
L213	A-6
L214	B-6
L215	C-6
L216	D-6
L217	C-7
L218	A-8
L220	H-6
L221	H-7
L222	H-8
L223	H-7
L224	H-8
L225	J-7
L226	J-7
L227	K-7
L228	K-7
L229	G-10
L230	F-10
L231	E-10
L232	J-10
L233	E-8
L234	F-8
L235	E-10
L236	H-10
L237	K-9
L238	H-8
*Q1	C-1
*Q2	C-2
*Q3	D-1
*Q4	D-2
*Q5	D-1
*Q6	E-1
*Q7	D-2
*Q8	C-3
*Q9	D-3
*Q10	B-2
*Q11	B-4
*Q12	B-4
*Q13	A-4
*Q14	A-4
*Q15	A-4
*Q16	A-4
*Q17	B-4
*Q18	D-5
*Q19	D-4
*Q20	H-5
*Q21	H-5
*Q22	H-5
*Q23	H-5
*Q24	J-5
*Q25	J-5
*Q26	K-5
*Q27	K-5
*Q28	F-4
*Q29	F-5
*Q30	H-3
*Q31	H-4
Q32	E-4
*Q33	E-3
*Q34	E-2
*Q35	B-5
Q201	A-9
*Q202	B-10
*Q203	A-9
*Q204	A-8
*Q205	B-9
*Q206	C-10
*Q207	C-10
*Q208	C-10
*Q209	C-10
*Q210	B-7
*Q211	B-7
*Q212	C-6
*Q213	C-7
*Q214	D-8
*Q215	D-8
*Q216	A-8
*Q217	C-8
*Q219	D-8
*Q220	C-7
*Q221	C-8
*Q222	C-7
*Q223	C-7
*Q224	K-10
*Q225	J-10
*Q226	J-10
*Q227	J-10
*Q228	K-10
*Q229	H-6
*Q230	H-6
*Q231	G-7
*Q232	G-6
*Q233	G-6
*Q234	H-7
*Q235	G-6
*Q236	E-6
*Q237	E-6
*Q238	E-6
*Q239	F-6
*Q240	K-6
*Q241	J-6
*Q242	K-6
*Q244	K-8
*Q245	H-8
*Q246	J-9
*Q247	H-9
*Q248	E-6
*Q249	E-7
*Q250	G-10
*Q251	G-10
*Q252	G-10
*Q253	G-10
*Q254	G-10
*Q255	F-10
*Q256	F-10
*Q257	E-10
*Q258	E-9
*Q259	K-9
*Q260	H-9
*Q261	H-10
*Q262	H-10
*Q263	H-10
*Q264	L-10
*Q265	F-8
*Q266	G-8
*Q267	F-8
*Q268	G-9
*Q269	G-9
*Q270	G-9
*Q271	F-9
*Q272	F-9
*Q273	F-9
Q501	G-2
Q601	G-2
RV1	A-1
RV2	B-4
RV3	A-5
RV4	A-5
RV5	B-5
RV6	D-5
RV201	A-10
RV202	A-10
RV203	B-9
RV204	A-9
RV205	D-9
RV206	B-8
RV207	B-7
RV208	C-6
RV209	B-8
RV210	B-8
RV212	C-8
RV213	H-7
RV214	F-6
RV215	E-7
RV216	H-9
RV217	E-7
RV219	D-9
RV220	G-8
RV221	H-10
S101	F-3
S201	F-10
TP1	C-2
TP2	E-2
TP3	D-3
TP4	B-3
TP5	B-1
TP6	B-1
TP7	B-3
TP8	B-5
TP9	D-5
TP10	D-4
TP11	E-2
TP12	F-2
TP13	F-4
TP14	E-2
TP15	H-3
TP16	H-4
TP17	F-5
TP201	C-10
TP202	B-10
TP203	B-10
TP204	B-9
TP205	A-9
TP206	A-9
TP207	B-9
TP208	C-10
TP209	C-8
TP210	A-6
TP211	A-6
TP212	C-6
TP213	C-7
TP214	J-10
TP215	J-10
TP216	J-7
TP217	J-6
TP218	G-8
TP219	F-8
TP220	J-8
TP221	L-9
TP222	H-8
TP223	K-9
TP224	H-10
TP225	H-10
TP226	E-10
TP227	G-9
TP228	H-9
TP229	L-10
TP230	L-9
TP231	G-9
TP232	A-8
TP233	D-10
TP234	E-7
TP235	F-8
X1	H-3
X2	J-3
X3	K-3
X4	K-3
X201	J-7
X202	K-7

Note:The *-marked components are mounted on B SIDE (Component Side).


A
B
C
D
E
CN1001
CN1002
CN1003
CN171
PEDESTAL CLAMP
PULSE WIDTH
SERVO REF VIDEO
INPUT VIDEO
AGC VIDEO OUT
VIDEO
RV3 SYNC TIP CARRIER
RV4 WHITE CLIP
RV5 DARK CLIP
FM DEVIATION
REC REF
REC RF
CN175
SONY MADE IN JAPAN
VO-39 1-640-630-12
LOT NO.
S NO.
IC3
IC4
IC5
IC6
IC15
IC202
IC203
IC205
IC206
IC209
RV201
RV202
RV203
RV205
RV206
RV207
RV209
RV210
RV215
DO VIDEO LEVEL
RV219 PB LEVEL
DEMOD BALANCE
PB GAIN
TP202 RF SWP
TP211
TP213
CN109
CN101



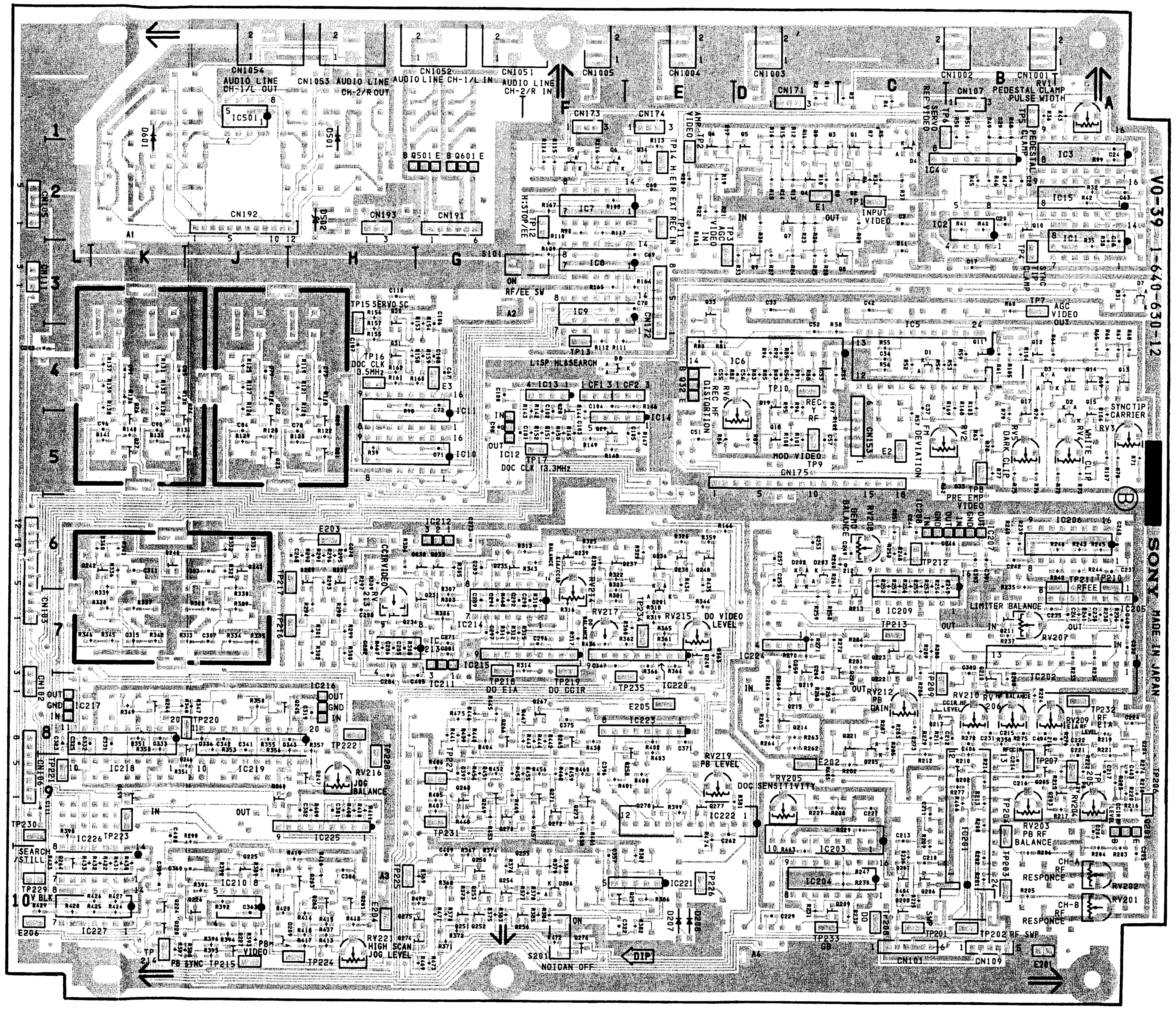
VO-39

–A SIDE–

1-640-630-12

VO-9600H

A SIDE is the same as Component Side.



VO-39

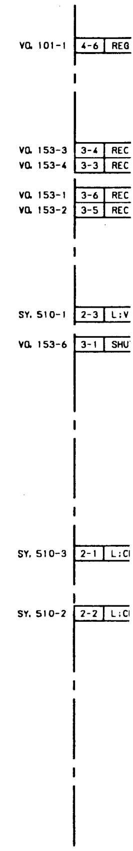
–B SIDE–

1-640-630-12

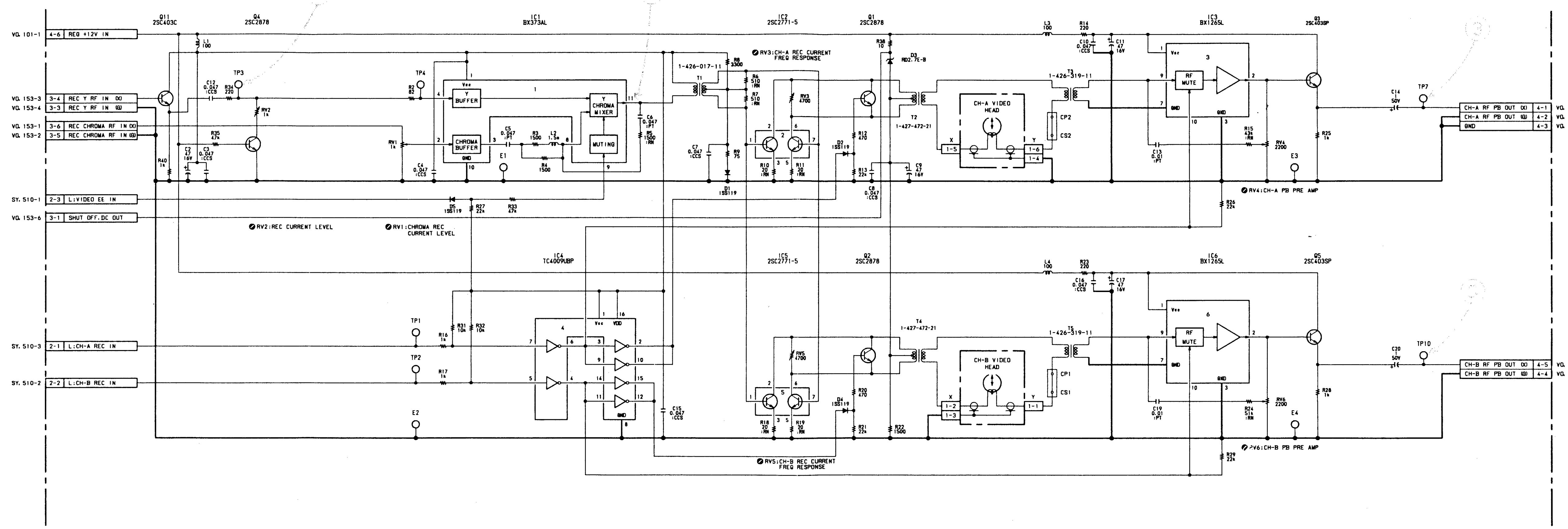
VO-9600H

B SIDE is the same as Solder Side.

RP-36A:PB A


VQ. 101-1
4-6
REG
VQ. 153-3
3-4
REC
VQ. 153-4
3-3
REC
VQ. 153-1
3-6
REC
VQ. 153-2
3-5
REC
SY. 510-1
2-3
L:V
VQ. 153-6
3-1
SHU
SY. 510-3
2-1
L:C
SY. 510-2
2-2
L:C

RP-36A:PB AMPLIFIER

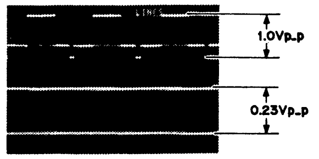

VO. 101-1
4-6
REG +12V IN
VO. 153-3
3-4
REC Y RF IN (X)
VO. 153-4
3-3
REC Y RF IN (G)
VO. 153-1
3-6
REC CHROMA RF IN (X)
VO. 153-2
3-5
REC CHROMA RF IN (G)
SY. 510-1
2-3
L;VIDEO EE IN
VO. 153-6
3-1
SHUT OFF.DC OUT
SY. 510-3
2-1
L;CH-A REC IN
SY. 510-2
2-2
L;CH-B REC IN
Q11
2SC403C
Q4
2SC2878
L1
100
TP3
C12
0.047
:CCS
R34
220
RV2
1k
R35
47k
R40
1k
C2
47
16V
C3
0.047
:CCS
TP4
R2
82
RV1
1k
C4
0.047
:CCS
IC1
BX373AL
Vcc
Y
BUFFER
CHROMA
BUFFER
GND
Y
CHROMA
MIXER
MUTING
C5
0.047
:PT
R3
1500
L2
1.5m
R4
1500
E1
C6
0.047
:PT
R5
1500
:RN
D5
1SS119
R27
22k
R33
47k
RV2:REC CURRENT LEVEL
RV1:CHROMA REC
CURRENT LEVEL
1-426-017-11
T1
R8
3300
RV3:CH-A REC CURRENT
FREQ RESPONSE
R6
510
:RN
R7
510
:RN
C7
0.047
:CCS
R9
75
D1
1SS119
IC2
2SC2771-5
RV3
4700
R10
20
:RN
R11
20
:RN
Q1
2SC2878
R38
10
D3
RD2.7E-B
D2
1SS119
R12
470
R13
22k
C8
0.047
:CCS
C9
47
16V
T2
1-427-472-21
CH-A VIDEO
HEAD
X
1-5
Y
1-6
1-4
CP2
CS2
L3
100
R14
220
C10
0.047
:CCS
C11
47
16V
T3
1-426-319-11
IC3
BX1265L
RF
MUTE
GND
C13
0.01
:PT
R15
43k
:RN
RV4
2200
E3
R25
1k
RV4:CH-A PB PRE AMP
R26
22k
Q3
2SC403SP
C14
1
50V
TP7
CH-A RF PB OUT (X)
4-1
VO. 101-6
CH-A RF PB OUT (G)
4-2
VO. 101-5
GND
4-3
VO. 101-4
IC4
TC4009UBP
TP1
R16
1k
R31
10k
R32
10k
TP2
R17
1k
E2
Vcc
VDD
GND
C15
0.047
:CCS
IC5
2SC2771-5
RV5
4700
R18
20
:RN
R19
20
:RN
RV5:CH-B REC CURRENT
FREQ RESPONSE
Q2
2SC2878
D4
1SS119
R20
470
R21
22k
R22
1500
T4
1-427-472-21
CH-B VIDEO
HEAD
X
1-2
1-3
Y
1-1
CP1
CS1
L4
100
R23
220
C16
0.047
:CCS
C17
47
16V
T5
1-426-319-11
IC6
BX1265L
RF
MUTE
GND
C19
0.01
:PT
R24
51k
:RN
RV6
2200
E4
RV6:CH-B PB PRE AMP
R29
22k
Q5
2SC403SP
R28
1k
C20
1
50V
TP10
CH-B RF PB OUT (X)
4-5
VO. 101-2
CH-B RF PB OUT (G)
4-4
VO. 101-3

RP-36A

1-625-642-12
VO-9600H

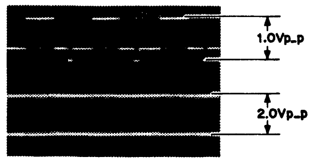
EO OUT
,EE

3
,EE

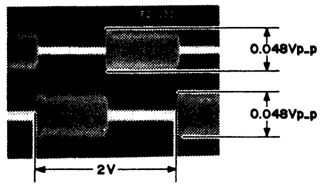


EO OUT
,EE

-Pin 11
,EE.



O



Supplemental Explanations on RP-36A Board of Waveform Photographs

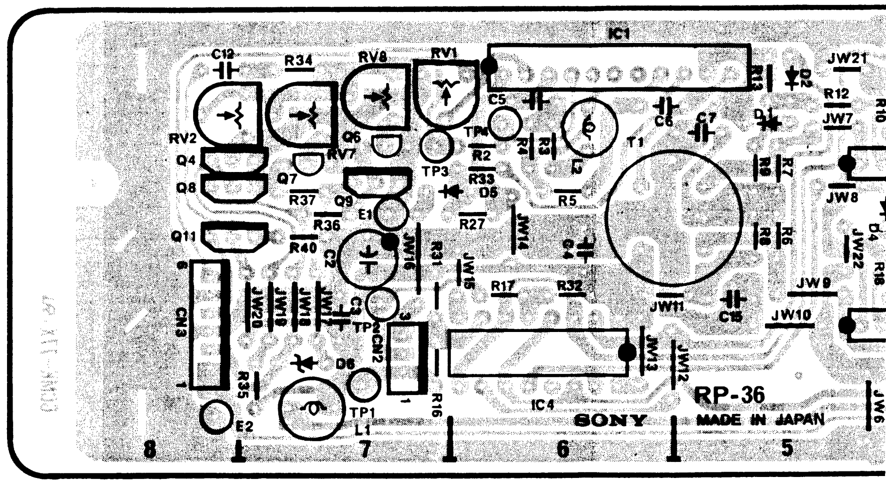
TP NO.	525/60		625/60		1023/60		1049/60		1125/60		1249/50	
	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB	REC/EE	PB
TP3	◎	–	○	–	○	–	○	–	○	–	○	–
IC1-11	◎	–	○	–	○	–	○	–	○	–	○	–
TP7	–	◎	–	○	–	○	–	○	–	○	–	○
TP10	–	◎	–	○	–	○	–	○	–	○	–	○

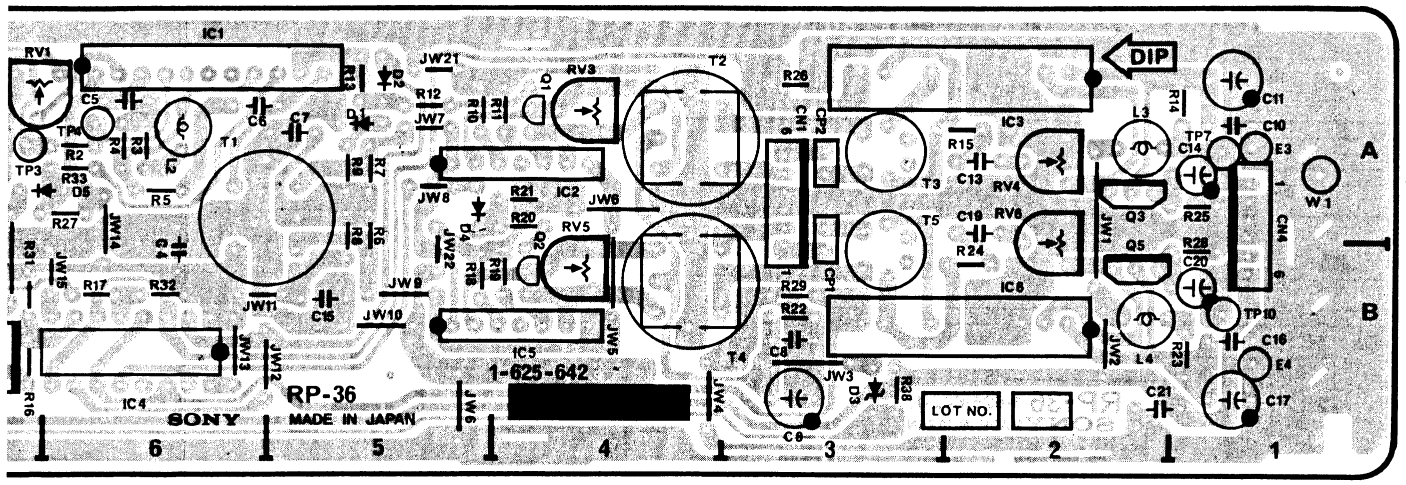
◎ ; Photograph
○ ; Waveform is similar to the photograph.
– ; No signal
∗ ; Waveform differs depending on mode.

RP-36A: PB AMPLIFIER

RP-36A (1-625-642-12)

CN1	A-3	T1	A-6
CN2	B-7	T2	A-4
CN3	B-8	T3	A-3
CN4	A-1	T4	B-4
		T5	B-3
CP1	A-3		
CP2	A-3	TP1	B-7
		TP2	B-7
D1	A-5	TP3	A-7
D2	A-5	TP4	A-6
D3	B-3	TP7	A-1
D4	A-5	TP10	B-1
D5	A-6		
D6	B-7		
E1	A-7		
E2	B-8		
E3	A-1		
E4	B-1		
IC1	A-6		
IC2	A-4		
IC3	A-2		
IC4	B-6		
IC5	B-4		
IC6	B-2		
Q1	A-4		
Q2	B-4		
Q3	A-2		
Q4	A-8		
Q5	B-2		
Q6	A-7		
Q7	A-7		
Q8	A-8		
Q9	A-7		
Q11	A-8		
RV1	A-7		
RV2	A-8		
RV3	A-4		
RV4	A-2		
RV5	B-4		
RV6	A-2		
RV7	A-7		
RV8	A-7		


IC1
C12
R34
RV8
RV1
JW21
R13
D2
R12
R10
C5
C6
C7
D1
JW7
RV2
Q6
TP4
R4
R3
L2
T1
Q4
RV7
R2
R9
R7
Q7
TP3
R33
Q8
R37
Q9
D5
R5
JW8
E1
R36
R27
JW14
R8
R6
D4
Q11
R40
C2
JW16
R31
C4
JW22
R18
JW15
6
R17
R32
JW9
CN3
JW20
JW19
JW18
JW17
C3
TP2
CN2
3
JW11
C15
JW10
JW13
JW12
D6
R35
1
1
R16
RP-36
IC4
E2
TP1
L1
SONY
MADE IN JAPAN
JW6
8
7
6
5


IC1
RV1
C5
TP4
TP3
R2
R33
D5
R5
R27
T1
C6
C7
D1
D2
R13
JW21
R12
JW7
RV3
T2
R26
CN1
CP2
DIP
IC3
R15
C13
RV4
T3
T5
C19
RV6
R24
L3
R14
C11
TP7
C14
C10
E3
JW1
Q3
Q5
R25
R28
C20
CN4
W1
TP10
C16
E4
C17
L4
R23
JW2
IC6
IC2
R21
R20
JW8
RV5
JW9
JW10
IC5
R29
R22
C8
CP1
T4
C9
JW3
D3
R38
LOT NO.
C21
R31
JW15
R17
R32
JW14
C4
JW11
C15
JW13
JW12
IC4
R16
SONY
RP-36
MADE IN JAPAN
1-625-642
JW6
JW4
JW5
JW22
D4
R18
R19
R6
R8
R9
R7
R10
R11
6
5
4
3
2
1
A
B

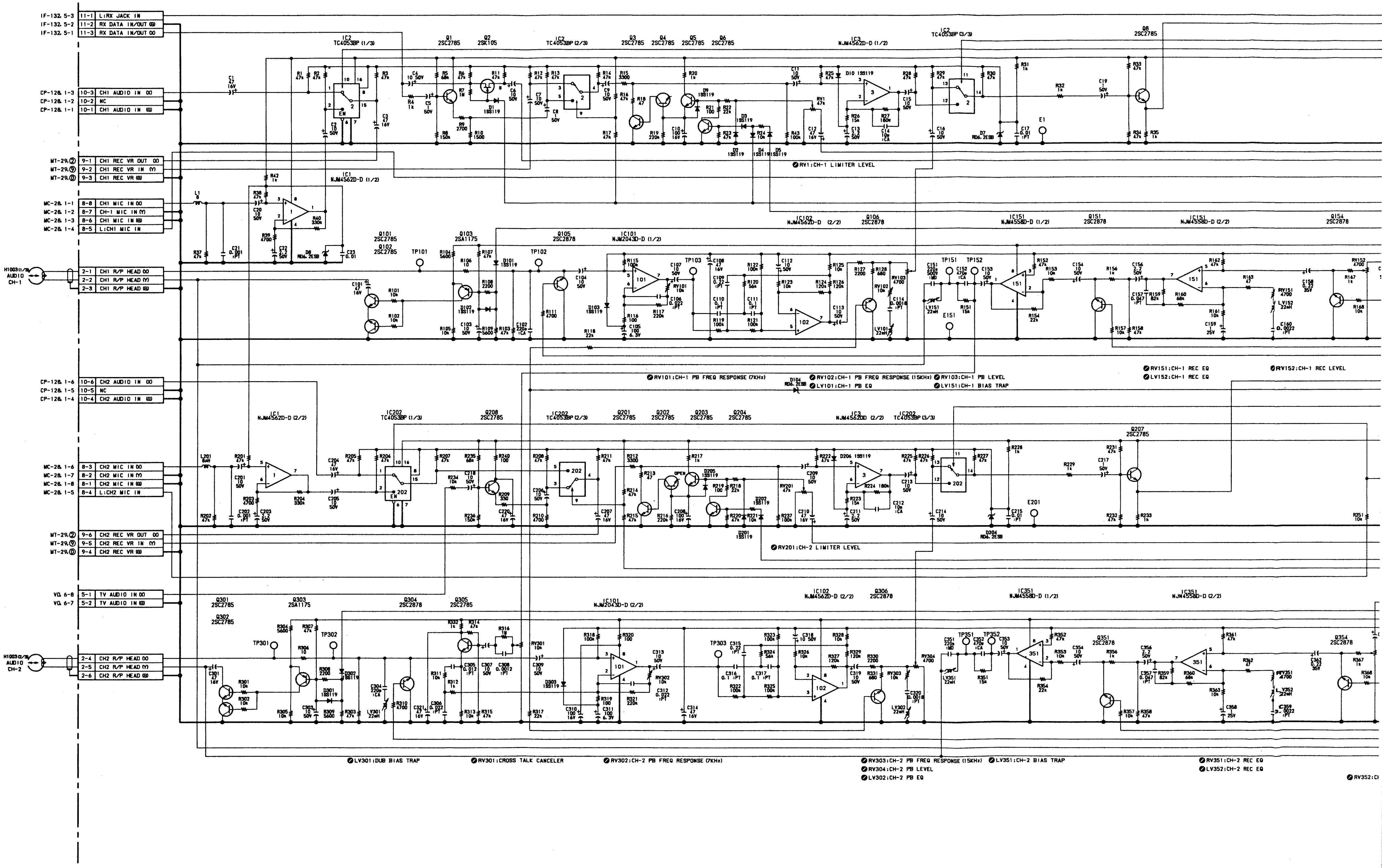
RP-36A

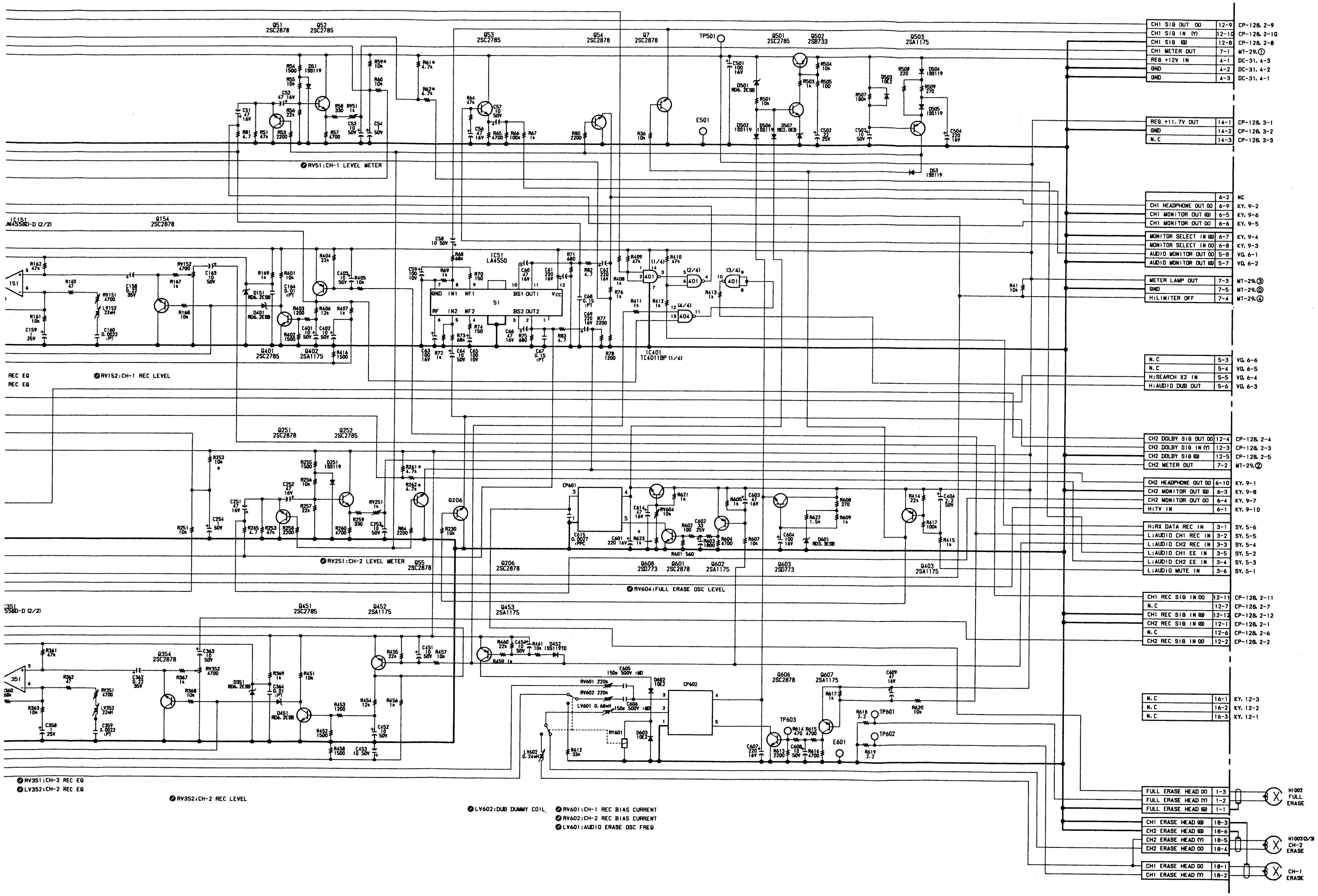
-COMPONENT SIDE-

1-625-642-12

VO-9600H

AU-82B: PB AMPLIFIER


IF-132, 5-3 11-1 L:RX JACK IN
IF-132, 5-2 11-2 RX DATA IN/OUT (G)
IF-132, 5-1 11-3 RX DATA IN/OUT (X)
CP-128, 1-3 10-3 CH1 AUDIO IN (X)
CP-128, 1-2 10-2 NC
CP-128, 1-1 10-1 CH1 AUDIO IN (G)
MT-29,② 9-1 CH1 REC VR OUT (X)
MT-29,⑨ 9-2 CH1 REC VR IN (Y)
MT-29,⓪ 9-3 CH1 REC VR (G)
MC-28, 1-1 8-8 CH1 MIC IN (X)
MC-28, 1-2 8-7 CH-1 MIC IN (Y)
MC-28, 1-3 8-6 CH1 MIC IN (G)
MC-28, 1-4 8-5 L:CH1 MIC IN
H1003(1/3) AUDIO CH-1
2-1 CH1 R/P HEAD (X)
2-2 CH1 R/P HEAD (Y)
2-3 CH1 R/P HEAD (G)
CP-128, 1-6 10-6 CH2 AUDIO IN (X)
CP-128, 1-5 10-5 NC
CP-128, 1-4 10-4 CH2 AUDIO IN (G)
MC-28, 1-6 8-3 CH2 MIC IN (X)
MC-28, 1-7 8-2 CH2 MIC IN (Y)
MC-28, 1-8 8-1 CH2 MIC IN (G)
MC-28, 1-5 8-4 L:CH2 MIC IN
MT-29,② 9-6 CH2 REC VR OUT (X)
MT-29,⑨ 9-5 CH2 REC VR IN (Y)
MT-29,⓪ 9-4 CH2 REC VR (G)
VO, 6-8 5-1 TV AUDIO IN (X)
VO, 6-7 5-2 TV AUDIO IN (G)
H1003(2/3) AUDIO CH-2
2-4 CH2 R/P HEAD (X)
2-5 CH2 R/P HEAD (Y)
2-6 CH2 R/P HEAD (G)
IC2 TC4053BP (1/3)
Q1 2SC2785
Q2 2SK105
IC2 TC4053BP (2/3)
Q3 2SC2785
Q4 2SC2785
Q5 2SC2785
Q6 2SC2785
IC3 NJM4562D-D (1/2)
IC2 TC4053BP (3/3)
Q8 2SC2785
IC1 NJM4562D-D (1/2)
Q101 2SC2785
Q102 2SC2785
Q103 2SA1175
Q105 2SC2878
IC101 NJM2043D-D (1/2)
IC102 NJM4562D-D (2/2)
Q106 2SC2878
IC151 NJM4558D-D (1/2)
Q151 2SC2878
IC151 NJM4558D-D (2/2)
Q154 2SC2878
RV1:CH-1 LIMITER LEVEL
RV101:CH-1 PB FREQ RESPONSE (7KHz)
RV102:CH-1 PB FREQ RESPONSE (15KHz)
LV101:CH-1 PB EQ
RV103:CH-1 PB LEVEL
LV151:CH-1 BIAS TRAP
RV151:CH-1 REC EQ
LV152:CH-1 REC EQ
RV152:CH-1 REC LEVEL
IC1 NJM4562D-D (2/2)
IC202 TC4053BP (1/3)
Q208 2SC2785
IC202 TC4053BP (2/3)
Q201 2SC2785
Q202 2SC2785
Q203 2SC2785
Q204 2SC2785
IC3 NJM4562DD (2/2)
IC202 TC4053BP (3/3)
Q207 2SC2785
RV201:CH-2 LIMITER LEVEL
Q301 2SC2785
Q302 2SC2785
Q303 2SA1175
Q304 2SC2878
Q305 2SC2785
IC101 NJM2043D-D (2/2)
IC102 NJM4562D-D (2/2)
Q306 2SC2878
IC351 NJM4558D-D (1/2)
Q351 2SC2878
IC351 NJM4558D-D (2/2)
Q354 2SC2878
LV301:DUB BIAS TRAP
RV301:CROSS TALK CANCELER
RV302:CH-2 PB FREQ RESPONSE (7KHz)
RV303:CH-2 PB FREQ RESPONSE (15KHz)
RV304:CH-2 PB LEVEL
LV302:CH-2 PB EQ
LV351:CH-2 BIAS TRAP
RV351:CH-2 REC EQ
LV352:CH-2 REC EQ
RV352:C


Q51 2SC2878
Q52 2SC2785
Q53 2SC2785
Q54 2SC2878
Q7 2SC2878
TP501
Q501 2SC2785
Q502 2SB733
Q503 2SA1175
E501
D53 1SS119
RV51:CH-1 LEVEL METER
IC151 LM4558D-D (2/2)
Q154 2SC2878
IC51 LA4550
51
GND IN1 NF1 BS1 OUT1 Vcc
RF IN2 NF2 BS2 OUT2
IC401 TC4011BP (1/4)
401
404
(1/4)
(2/4)
(3/4)
(4/4)
Q401 2SC2785
Q402 2SA1175
REC EQ
REC EQ
RV152:CH-1 REC LEVEL
Q251 2SC2878
Q252 2SC2785
Q206
CP601
RV251:CH-2 LEVEL METER
Q55 2SC2878
Q206 2SC2878
Q608 2SD773
Q601 2SC2878
Q602 2SA1175
Q603 2SD773
Q403 2SA1175
RV604:FULL ERASE OSC LEVEL
IC351 LM4558D-D (2/2)
Q451 2SC2785
Q452 2SA1175
Q453 2SA1175
Q354 2SC2878
CP602
Q606 2SC2878
Q607 2SA1175
TP603
TP601
TP602
E601
RV351:CH-2 REC EQ
LV352:CH-2 REC EQ
RV352:CH-2 REC LEVEL
LV602:DUB DUMMY COIL
RV601:CH-1 REC BIAS CURRENT
RV602:CH-2 REC BIAS CURRENT
LV601:AUDIO ERASE OSC FREQ
CH1 SIG OUT (X) 12-9 CP-128, 2-9
CH1 SIG IN (Y) 12-10 CP-128, 2-10
CH1 SIG (G) 12-8 CP-128, 2-8
CH1 METER OUT 7-1 MT-29, ①
REG +12V IN 4-1 DC-31, 4-3
GND 4-2 DC-31, 4-2
GND 4-3 DC-31, 4-1
REG.+11.7V OUT 14-1 CP-128, 3-1
GND 14-2 CP-128, 3-2
N.C 14-3 CP-128, 3-3
6-2 NC
CH1 HEADPHONE OUT (X) 6-9 KY, 9-2
CH1 MONITOR OUT (G) 6-5 KY, 9-6
CH1 MONITOR OUT (X) 6-6 KY, 9-5
MONITOR SELECT IN (G) 6-7 KY, 9-4
MONITOR SELECT IN (X) 6-8 KY, 9-3
AUDIO MONITOR OUT (X) 5-8 VO, 6-1
AUDIO MONITOR OUT (G) 5-7 VO, 6-2
METER LAMP OUT 7-3 MT-29, ③
GND 7-5 MT-29, ⓪
H:LIMITER OFF 7-4 MT-29, ④
N.C 5-3 VO, 6-6
N.C 5-4 VO, 6-5
H:SEARCH X2 IN 5-5 VO, 6-4
H:AUDIO DUB OUT 5-6 VO, 6-3
CH2 DOLBY SIG OUT (X) 12-4 CP-128, 2-4
CH2 DOLBY SIG IN (Y) 12-3 CP-128, 2-3
CH2 DOLBY SIG (G) 12-5 CP-128, 2-5
CH2 METER OUT 7-2 MT-29, ②
CH2 HEADPHONE OUT (X) 6-10 KY, 9-1
CH2 MONITOR OUT (G) 6-3 KY, 9-8
CH2 MONITOR OUT (X) 6-4 KY, 9-7
H:TV IN 6-1 KY, 9-10
H:RX DATA REC IN 3-1 SY, 5-6
L:AUDIO CH1 REC IN 3-2 SY, 5-5
L:AUDIO CH2 REC IN 3-3 SY, 5-4
L:AUDIO CH1 EE IN 3-5 SY, 5-2
L:AUDIO CH2 EE IN 3-4 SY, 5-3
L:AUDIO MUTE IN 3-6 SY, 5-1
CH1 REC SIG IN (X) 12-11 CP-128, 2-11
N.C 12-7 CP-128, 2-7
CH1 REC SIG IN (G) 12-12 CP-128, 2-12
CH2 REC SIG IN (G) 12-1 CP-128, 2-1
N.C 12-6 CP-128, 2-6
CH2 REC SIG IN (X) 12-2 CP-128, 2-2
N.C 16-1 KY, 12-3
N.C 16-2 KY, 12-2
N.C 16-3 KY, 12-1
FULL ERASE HEAD (X) 1-3
FULL ERASE HEAD (Y) 1-2
FULL ERASE HEAD (G) 1-1
H1002 FULL ERASE
CH1 ERASE HEAD (G) 18-3
CH2 ERASE HEAD (G) 18-6
CH2 ERASE HEAD (Y) 18-5
CH2 ERASE HEAD (X) 18-4
H1003(3/3) CH-2 ERASE
CH1 ERASE HEAD (X) 18-1
CH1 ERASE HEAD (Y) 18-2
CH-1 ERASE

AU-82B

1-622-393-32
VO-9600H

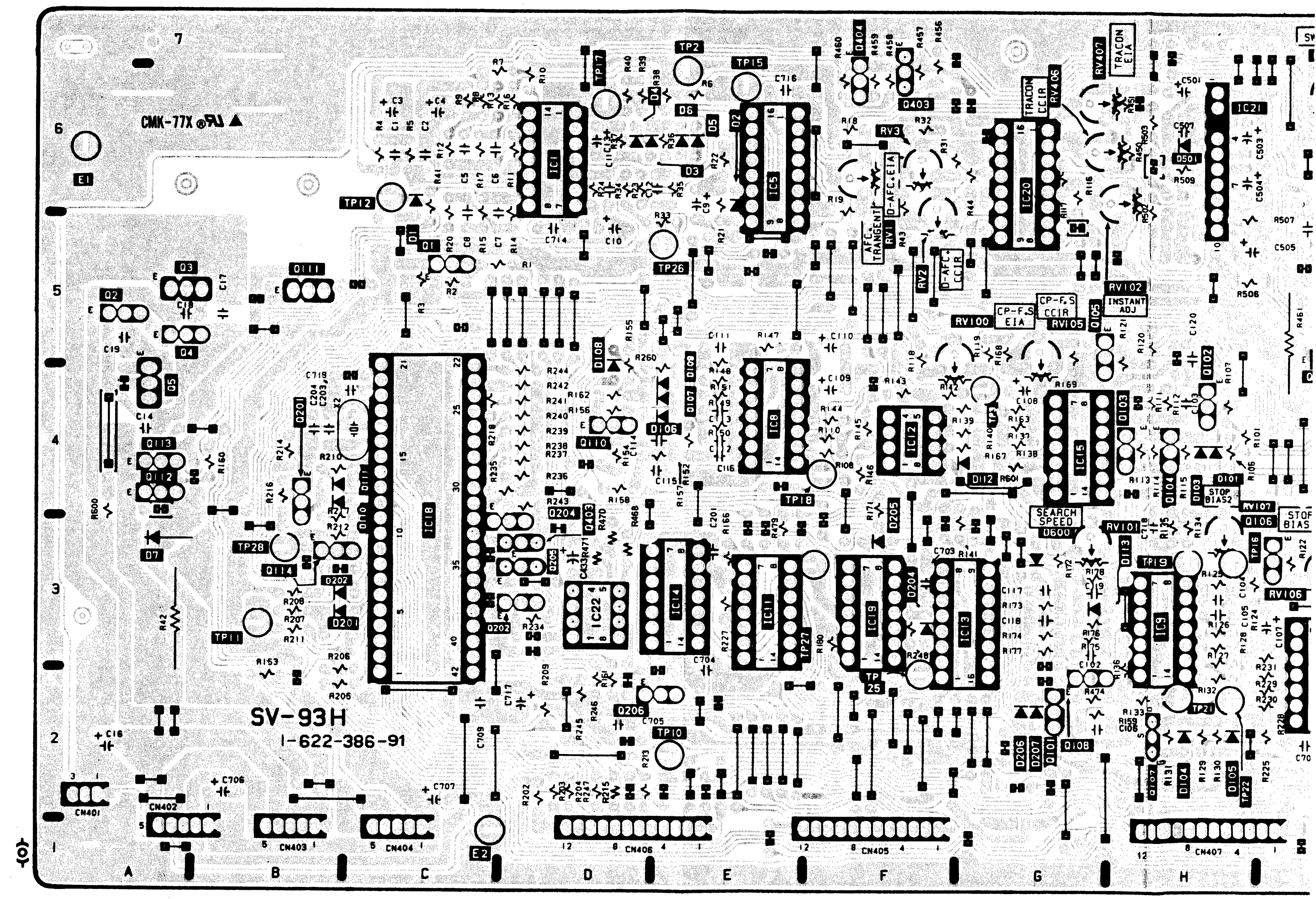
SV-93H: SERVO SYSTEM

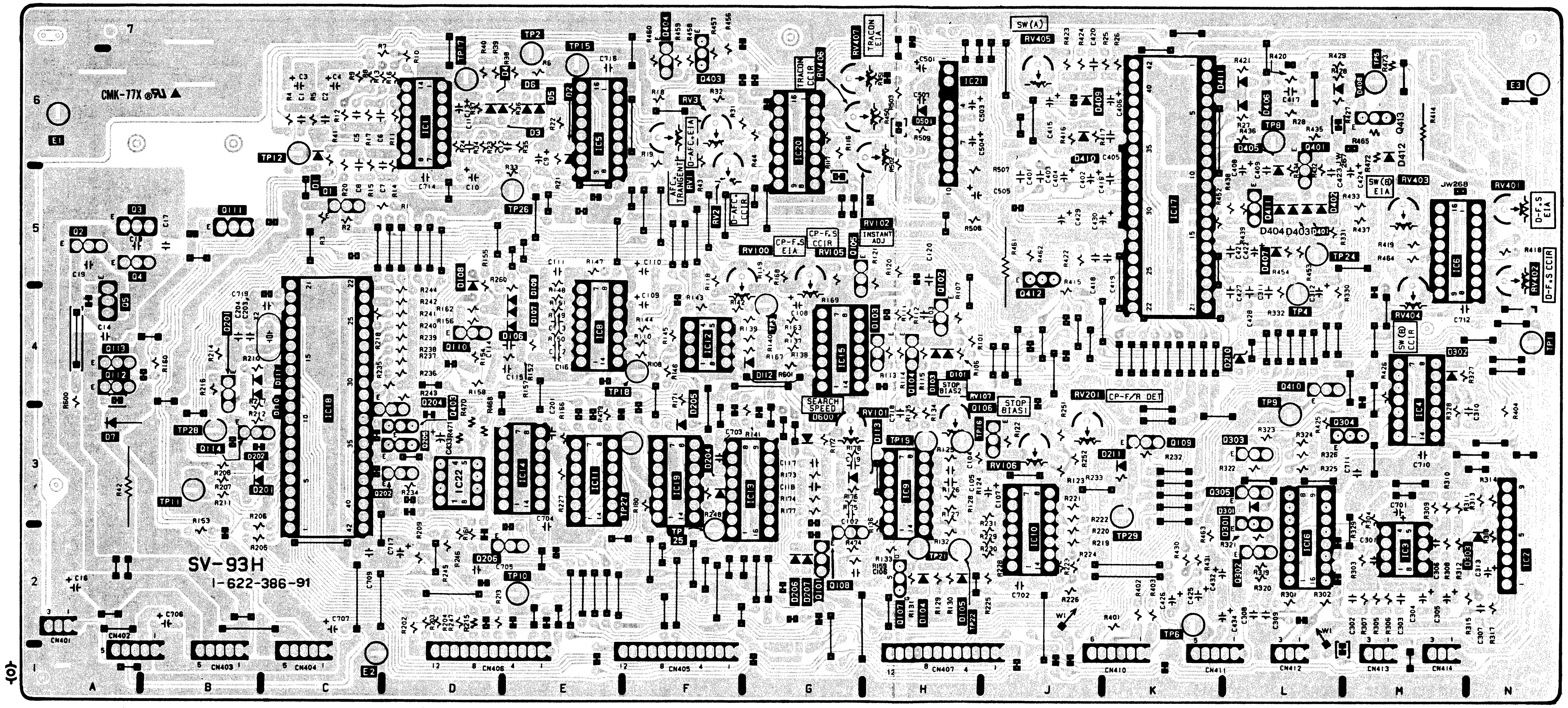
(J) S/N 10001 through 10040
(UC) S/N 10001 through 10060
(EK) S/N 10001 through 10040

SV-93H (1-622-386-91) C

CN401	A-2
CN402	B-1
CN403	B-1
CN404	C-1
CN405	F-1
CN406	D-1
CN407	H-1
CN410	K-1
CN411	K-1
CN412	L-1
CN413	M-1
CN414	M-1
D1	C-5
D2	E-6
D3	E-6
D4	D-6
D5	E-6
D6	E-6
D7	A-3
D101	H-4
D103	H-4
D104	H-2
D105	H-2
D106	E-4
D107	E-4
D108	D-5
D109	E-4
D110	C-3
D111	C-4
D112	G-4
D113	H-3
D201	B-3
D202	B-3
D204	F-3
D205	F-3
D206	G-2
D207	G-2
D210	L-4
D211	K-3
D301	L-3
D302	M-4
D303	N-2
D401	L-5
D402	L-5
D403	L-5
D404	L-5
D405	L-6
D406	L-6
D407	L-5
D408	M-6
D409	J-6
D410	J-6
D411	K-6
D412	M-6
D501	H-7
D600	G-3
*E1	A-6
*E2	C-1
*E3	N-6
IC1	D-6
IC2	N-3
IC3	M-2
IC4	M-3
IC5	E-6
IC6	M-4
IC8	E-4
IC9	H-3
IC10	J-2
IC11	E-3
IC12	F-4
IC13	G-2
IC14	D-3
IC15	H-4
IC16	L-3
IC17	K-6
IC18	C-4
IC19	F-3
IC20	G-5
IC21	H-6
IC22	D-3
Q1	C-5
Q2	A-5
Q3	A-5
Q4	A-5
Q5	A-4
Q101	G-2
Q102	H-4
Q103	H-4
Q104	H-4
Q105	G-5
Q106	J-3
Q107	H-2
Q108	G-2
Q109	K-3
Q110	D-4
Q111	B-5
Q112	A-4
Q113	A-4
Q114	C-3
Q201	B-4
Q202	D-3
Q203	D-3
Q204	D-3
Q205	D-3
Q206	E-2
Q301	L-3
Q302	L-2
Q303	L-3
Q304	M-3
Q305	L-3
Q401	L-6
Q403	F-7
Q404	F-7
Q410	L-4
Q411	L-5
Q412	J-4
Q413	M-6
RV1	F-6
RV2	F-5
RV3	F-6
RV100	G-5
RV101	G-3
RV102	H-5
RV105	G-5
RV106	J-3
RV107	H-4
RV201	J-3
RV401	N-5
RV402	N-5
RV403	M-5
RV404	M-4
RV405	J-7
RV406	G-6
RV407	G-6
*TP1	N-4
*TP2	E-7
*TP3	G-4
*TP4	L-4
*TP5	M-6
*TP6	K-2
*TP8	L-6
*TP9	L-4
*TP10	E-2
*TP11	B-3
*TP12	C-6
*TP15	E-7
*TP16	H-3
*TP17	D-6
*TP18	E-4
*TP19	H-3
*TP21	H-2
*TP22	H-2
*TP24	M-5
*TP25	F-2
*TP26	E-5
*TP27	F-3
*TP28	B-3
*TP29	K-2
X2	B-4

Note: The *-marked components are mounted on COMPONENT SIDE.


CMK-77X
SV-93H
1-622-386-91
1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
CN401
CN402
CN403
CN404
CN406
CN405
CN407
IC1
IC5
IC8
IC11
IC12
IC13
IC14
IC15
IC18
IC19
IC20
IC21
IC22
TRACON CCIR
TRACON EIA
AFC TANGENT
D-AFC EIA
D-AFC CCIR
CP-F.S CCIR
CP-F.S EIA
INSTANT ADJ
SEARCH SPEED
STOP BIAS
STOP BIAS2
E1
E2

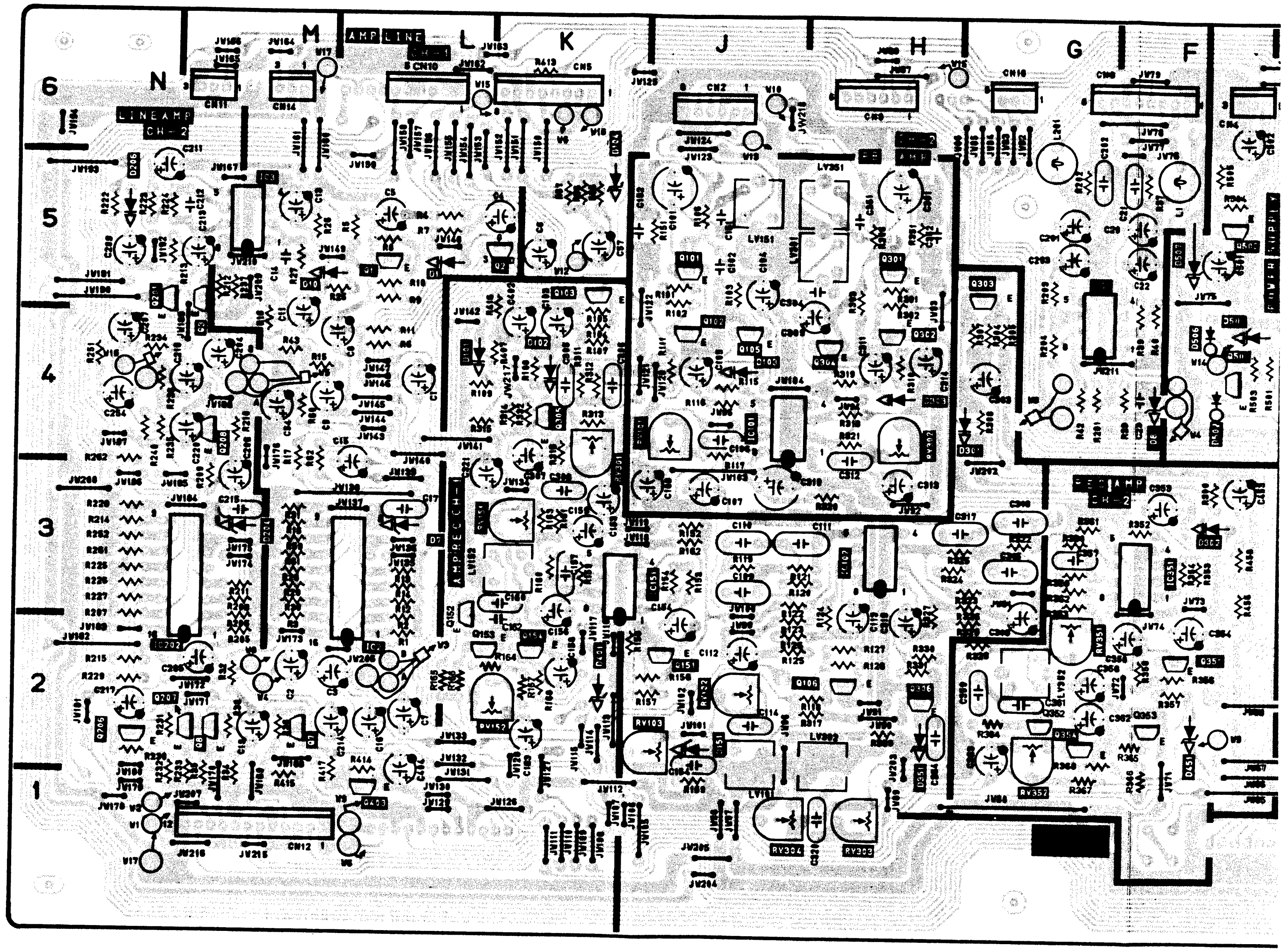

SV-93H
1-622-386-91
CMK-77X
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
CN401
CN402
CN403
CN404
CN405
CN406
CN407
CN410
CN411
CN412
CN413
CN414
E1
E2
E3
A
B
C
D
E
F
G
H
J
K
L
M
N
1
2
3
4
5
6
7

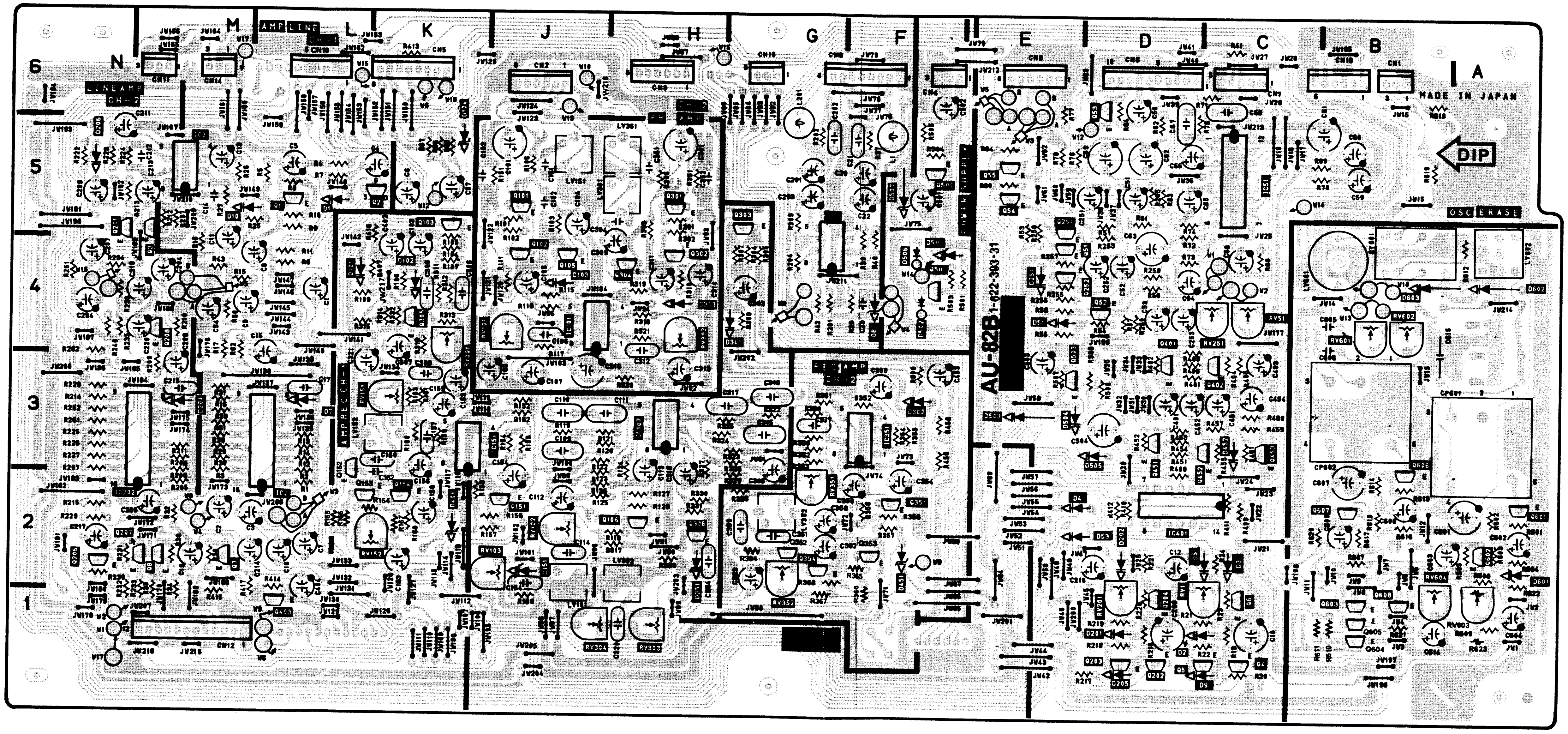
SV-93H
-COMPONENT SIDE-
1-622-386-91
VO-9600H

AU-82B:PB AMPLIFIER

AU-82B (1-622-393-32)

CN1	B-6
CN2	J-6
CN3	H-6
CN4	F-6
CN5	K-6
CN6	D-6
CN7	C-6
CN8	F-6
CN9	E-6
CN10	L-6
CN11	M-6
CN12	M-1
CN14	M-6
CN16	G-6
CN18	B-6
CP601	A-3
CP602	B-3
D1	L-5
D2	C-1
D3	C-2
D4	D-2
D5	C-2
D7	L-3
D8	F-4
D9	C-1
D10	M-5
D51	E-4
D53	D-2
D101	L-4
D102	K-4
D103	J-4
D104	K-5
D151	J-2
D201	D-1
D202	D-2
D204	M-3
D205	D-1
D206	N-5
D251	E-4
D301	G-4
D302	F-3
D303	H-4
D351	H-2
D401	K-2
D451	F-2
D452	C-3
D502	F-4
D503	E-3
D504	E-3
D505	D-3
D506	F-4
D507	F-5
D511	F-4
D601	A-2
D602	A-4
D603	B-4
IC1	G-5
IC2	L-3
IC3	M-5
IC51	C-5
IC101	J-4
IC102	H-3
IC151	K-3
IC202	M-3
IC351	F-3
iC401	D-2
LV101	J-2
LV151	J-5
LV152	K-3
LV301	H-5
LV302	H-2
LV351	H-5
LV352	G-2
LV601	B-4
LV602	A-4
Q1	L-5
Q2	L-5
Q3	M-5
Q4	C-1
Q5	C-1
Q6	C-2
Q7	M-2
Q8	M-2
Q34	E-5
Q51	E-4
Q52	D-4
Q53	D-6
Q54	E-5
Q55	E-5
Q101	J-5
Q102	J-4
Q103	K-5
Q105	J-4
Q106	H-2
Q151	J-2
Q152	L-3
Q153	L-2
Q154	K-2
Q201	N-5
Q202	D-1
Q203	D-1
Q204	D-2
Q206	F-4
Q207	M-2
Q208	M-4
Q251	E-5
Q252	E-4
Q301	H-5
Q302	H-4
Q303	G-5
Q304	H-4
Q305	K-4
Q306	H-2
Q351	F-2
Q352	G-2
Q353	F-2
Q354	G-2
Q401	D-4
Q402	C-4
Q403	L-1
Q451	D-3
Q452	C-3
Q453	C-3
Q502	F-5
Q503	E-3
Q511	E-4
Q601	B-4
Q602	B-4
Q603	A-2
Q604	B-1
Q605	B-1
Q606	B-3
Q607	B-2
Q608	B-2
RV1	C-2
RV51	C-4
RV101	J-4
RV102	J-2
RV103	J-2
RV151	K-3
RV152	K-2
RV201	D-2
RV251	C-4
RV301	K-4
RV302	H-4
RV303	H-1
RV304	J-1
RV351	G-2
RV352	G-2
RV601	B-4
RV602	B-4
RV603	A-1
RV604	B-2
RY601	B-5





AU-82B

–COMPONENT SIDE–

1-622-393-32

VO-9600H

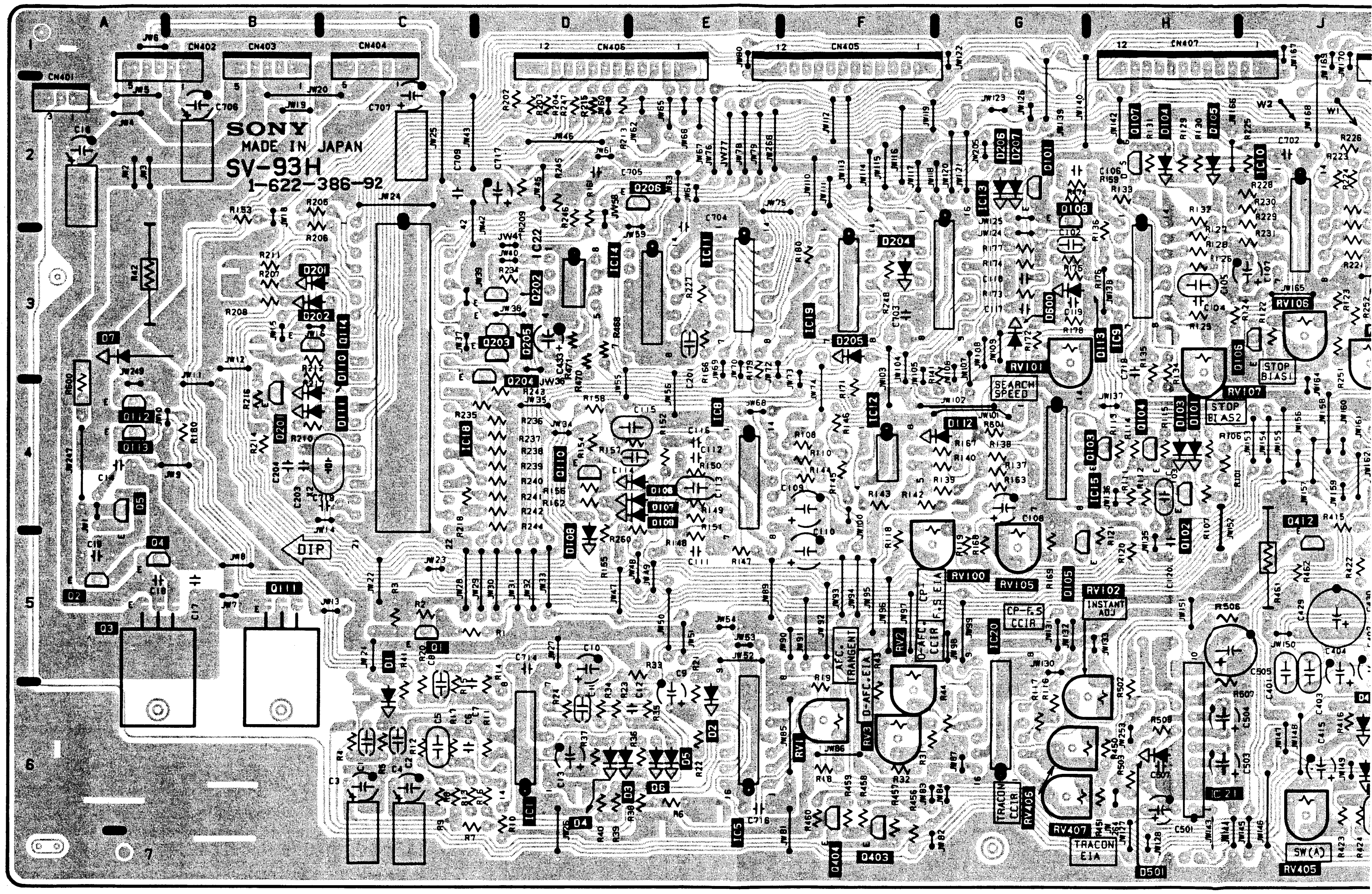
SV-93H: SERVO SYSTEM

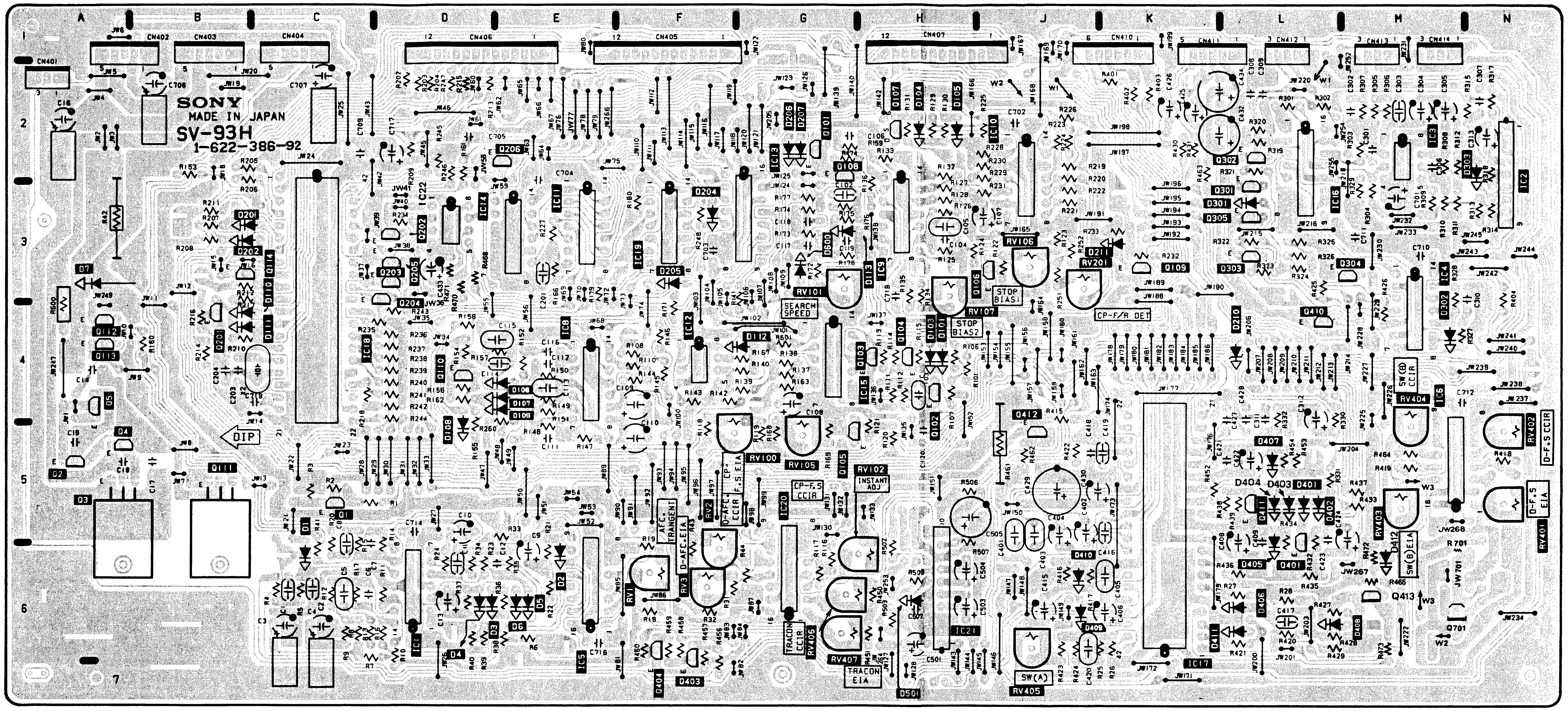
(J) S/N 10041 and higher
(UC) S/N 10061 and higher
(EK) S/N 10041 and higher

SV-93H (1-622-386-92) C

CN401	A-2
CN402	B-1
CN403	B-1
CN404	C-1
CN405	F-1
CN406	D-1
CN407	H-1
CN410	K-1
CN411	K-1
CN412	L-1
CN413	M-1
CN414	M-1
D1	C-5
D2	E-6
D3	E-6
D4	D-6
D5	E-6
D6	E-6
D7	A-3
D101	H-4
D103	H-4
D104	H-2
D105	H-2
D106	E-4
D107	E-4
D108	D-5
D109	E-4
D110	C-3
D111	C-4
D112	G-4
D113	H-3
D201	B-3
D202	B-3
D204	F-3
D205	F-3
D206	G-2
D207	G-2
D210	L-4
D211	K-3
D301	L-3
D302	M-4
D303	N-2
D401	L-5
D402	L-5
D403	L-5
D404	L-5
D405	L-6
D406	L-6
D407	L-5
D408	M-6
D409	J-6
D410	J-6
D411	K-6
D412	M-6
D501	H-7
D600	G-3
*E1	A-6
*E2	C-1
*E3	N-6
IC1	D-6
IC2	N-3
IC3	M-2
IC4	M-3
IC5	E-6
IC6	M-4
IC8	E-4
IC9	H-3
IC10	J-2
IC11	E-3
IC12	F-4
IC13	G-2
IC14	D-3
IC15	H-4
IC16	L-3
IC17	K-6
IC18	C-4
IC19	F-3
IC20	G-5
IC21	H-6
IC22	D-3
Q1	C-5
Q2	A-5
Q3	A-5
Q4	A-5
Q5	A-4
Q101	G-2
Q102	H-4
Q103	H-4
Q104	H-4
Q105	G-5
Q106	J-3
Q107	H-2
Q108	G-2
Q109	K-3
Q110	D-4
Q111	B-5
Q112	A-4
Q113	A-4
Q114	C-3
Q201	B-4
Q202	D-3
Q203	D-3
Q204	D-3
Q205	D-3
Q206	E-2
Q301	L-3
Q302	L-2
Q303	L-3
Q304	M-3
Q305	L-3
Q401	L-6
Q403	F-7
Q404	F-7
Q410	L-4
Q411	L-5
Q412	J-4
Q413	M-6
RV1	F-6
RV2	F-5
RV3	F-6
RV100	G-5
RV101	G-3
RV102	H-5
RV105	G-5
RV106	J-3
RV107	H-4
RV201	J-3
RV401	N-5
RV402	N-5
RV403	M-5
RV404	M-4
RV405	J-7
RV406	G-6
RV407	G-6
*TP1	N-4
*TP2	E-7
*TP3	G-4
*TP4	L-4
*TP5	M-6
*TP6	K-2
*TP8	L-6
*TP9	L-4
*TP10	E-2
*TP11	B-3
*TP12	C-6
*TP15	E-7
*TP16	H-3
*TP17	D-6
*TP18	E-4
*TP19	H-3
*TP21	H-2
*TP22	H-2
*TP24	M-5
*TP25	F-2
*TP26	E-5
*TP27	F-3
*TP28	B-3
*TP29	K-2
X2	B-4

Note: The *-marked components are mounted on COMPONENT SIDE.


A
B
C
D
E
F
G
H
J
1
2
3
4
5
6
7
CN401
CN402
CN403
CN404
CN405
CN406
CN407
SONY
MADE IN JAPAN
SV-93H
1-622-386-92
DIP
SEARCH SPEED
STOP BIAS1
STOP BIAS2
INSTANT ADJ
CP-6.5 CCIR
TRACON CCIR
TRACON EIA
SW(A)
RV100
RV101
RV102
RV105
RV106
RV107
RV405
RV407
IC22
Q111
Q3
D501


A
B
C
D
E
F
G
H
J
K
L
M
N
1
2
3
4
5
6
7
SONY
MADE IN JAPAN
SV-93H
1-622-386-92
CN401
CN402
CN403
CN404
CN405
CN406
CN407
CN410
CN411
CN412
CN413
CN414
DIP
SEARCH SPEED
STOP BIAS1
STOP BIAS2
CP-F/R DET
CP-F.S CCIR
INSTANT ADJ
AFC TRANGENT
D-AFC CCIR
D-AFC EIA
CP F.S EIA
TRACON CCIR
TRACON EIA
SW(A)
SW(B) CCIR
SW(B) EIA
D-F.S CCIR
D-F.S EIA
RV1
RV2
RV3
RV100
RV101
RV102
RV105
RV106
RV107
RV201
RV401
RV402
RV403
RV404
RV405
RV406
RV407
IC1
IC2
IC3
IC4
IC5
IC6
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22

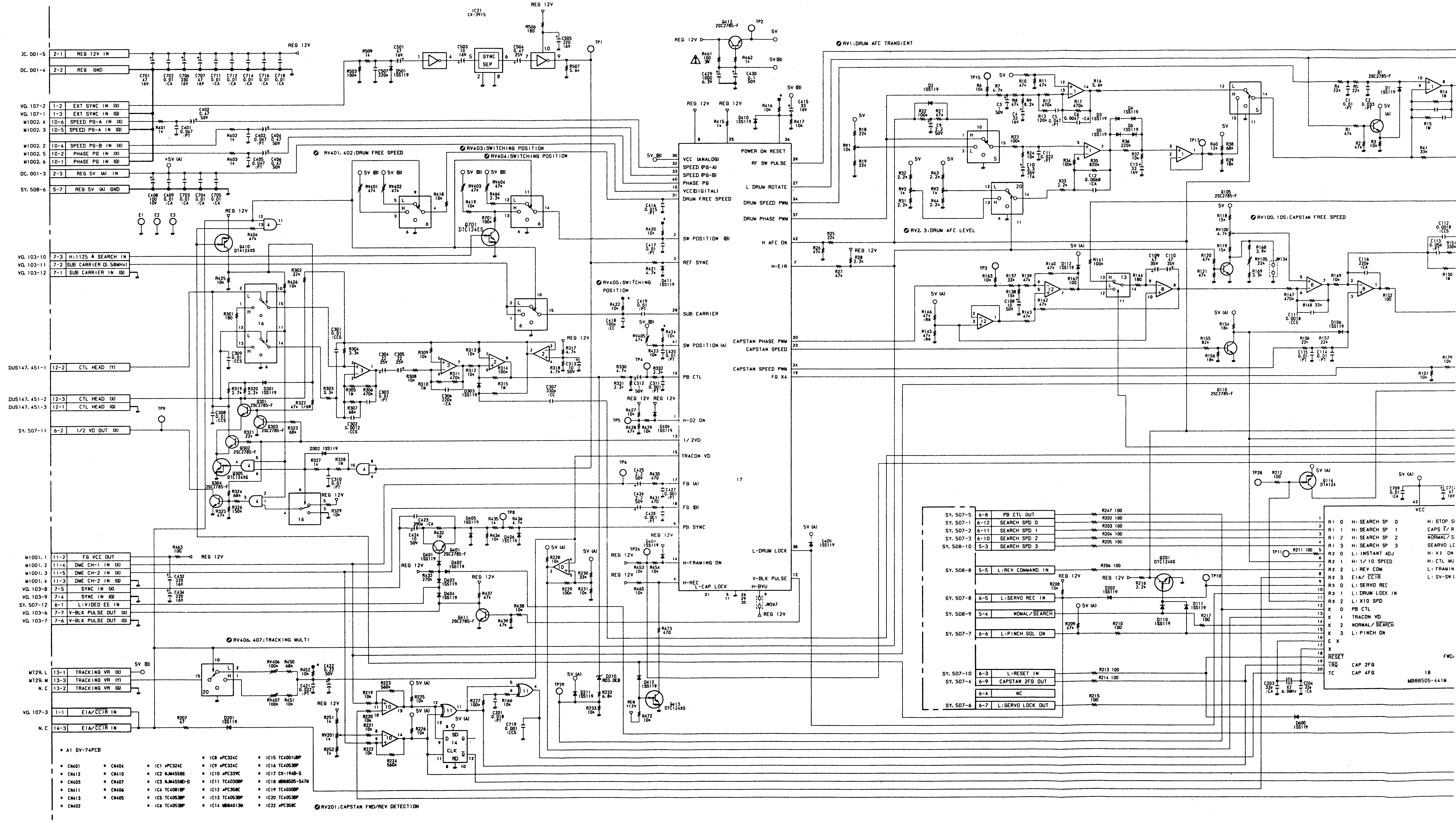
SV-93H

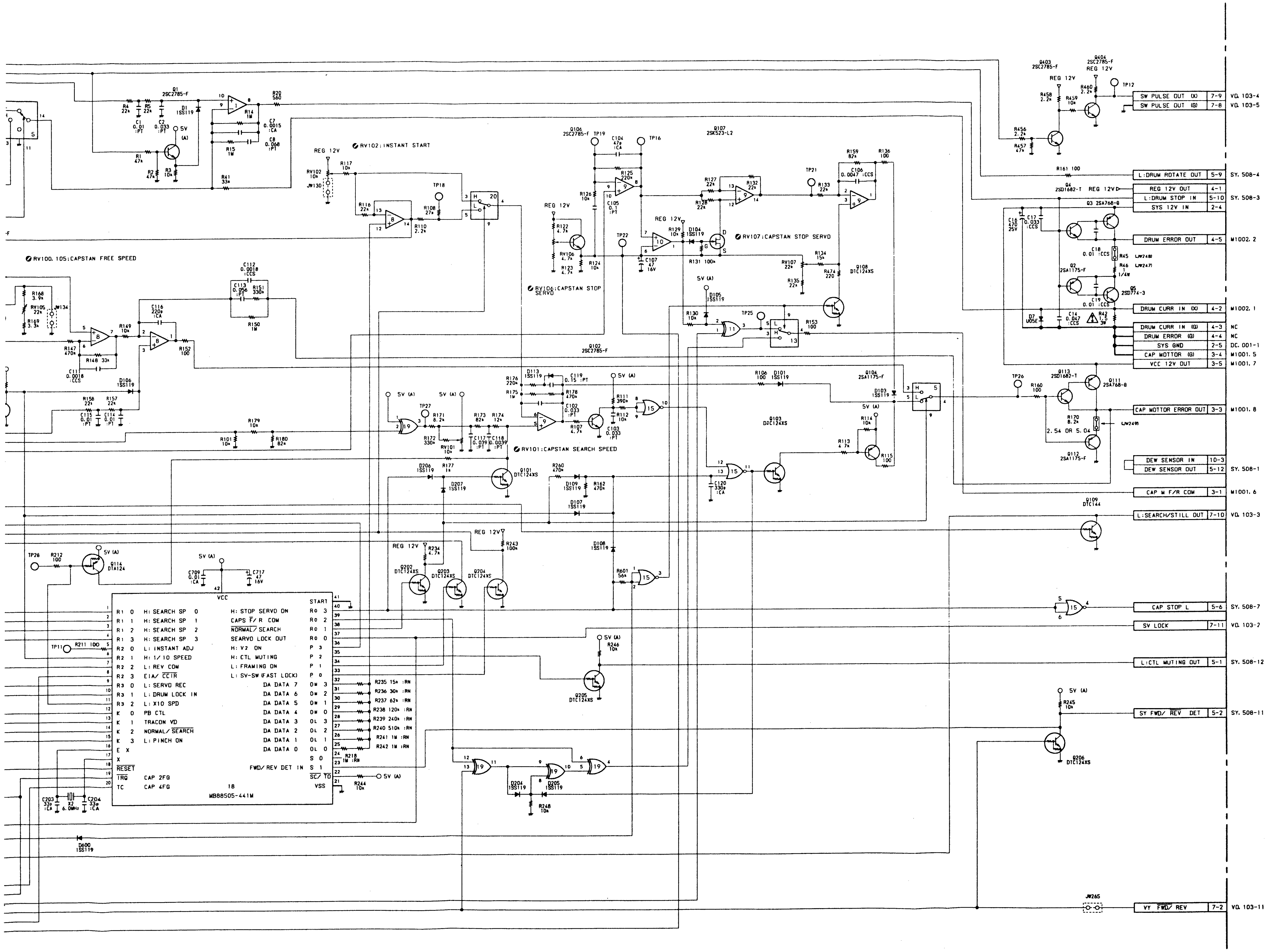
-COMPONENT SIDE-

1-622-386-92

VO-9600H

3H: SERVO SYSTEM


DC. 001-5 2-1 REG 12V IN
DC. 001-4 2-2 REG GND
VO. 107-2 1-2 EXT SYNC IN (X)
VO. 107-1 1-3 EXT SYNC IN (G)
M1002. 4 10-6 SPEED PG-A IN (X)
M1002. 3 10-5 SPEED PG-A IN (G)
M1002. 2 10-4 SPEED PG-B IN (X)
M1002. 5 10-2 PHASE PG IN (X)
M1002. 6 10-1 PHASE PG IN (G)
DC. 001-3 2-3 REG 5V (A) IN
SY. 508-6 5-7 REG 5V (A) GND
VO. 103-10 7-3 H:1125 & SEARCH IN
VO. 103-11 7-2 SUB CARRIER (3.58MHz)
VO. 103-12 7-1 SUB CARRIER IN (G)
DUS147. 451-1 12-2 CTL HEAD (Y)
DUS147. 451-2 12-3 CTL HEAD (X)
DUS147. 451-3 12-1 CTL HEAD (G)
SY. 507-11 6-2 1/2 VD OUT (X)
M1001. 1 11-2 FG VCC OUT
M1001. 2 11-4 DME CH-1 IN (X)
M1001. 3 11-5 DME CH-2 IN (X)
M1001. 4 11-3 DME CH-2 IN (G)
VO. 103-8 7-5 SYNC IN (X)
VO. 103-9 7-4 SYNC IN (G)
SY. 507-12 6-1 L:VIDEO EE IN
VO. 103-6 7-7 V-BLK PULSE OUT (X)
VO. 103-7 7-6 V-BLK PULSE OUT (G)
MT29. L 13-1 TRACKING VR (X)
MT29. M 13-3 TRACKING VR (Y)
N. C 13-2 TRACKING VR (G)
VO. 107-3 1-1 EIA/CCIR IN
N. C 14-3 EIA/CCIR IN
IC21 CX-3915
SYNC SEP
REG 12V
5V (A)
5V (B)
TP1
TP2
TP9
E1 E2 E3
RV401, 402:DRUM FREE SPEED
RV403:SWITCHING POSITION
RV404:SWITCHING POSITION
RV405:SWITCHING POSITION
RV406, 407:TRACKING MULTI
RV201:CAPSTAN FWD/REV DETECTION
RV1:DRUM AFC TRANSIENT
RV2, 3:DRUM AFC LEVEL
RV100, 105:CAPSTAN FREE SPEED
VCC (ANALOG)
SPEED (PG-A)
SPEED (PG-B)
PHASE PG
VCC (DIGITAL)
DRUM FREE SPEED
SW POSITION (B)
REF SYNC
SUB CARRIER
SW POSITION (A)
PB CTL
H-02 ON
1/2VD
TRACON VD
FG (A)
FG (B)
PB SYNC
H-FRAMING ON
H-REC
L-CAP LOCK
H-BVU
V-BLK PULSE
L-DRUM LOCK
POWER ON RESET
RF SW PULSE
L DRUM ROTATE
DRUM SPEED PWM
DRUM PHASE PWM
H AFC ON
H-EIR
CAPSTAN PHASE PWM
CAPSTAN SPEED
CAPSTAN SPEED PWM
FG X4
17
SY. 507-5 6-8 PB CTL OUT
SY. 507-1 6-12 SEARCH SPD 0
SY. 507-2 6-11 SEARCH SPD 1
SY. 507-3 6-10 SEARCH SPD 2
SY. 508-10 5-3 SEARCH SPD 3
SY. 508-8 5-5 L:REV COMMAND IN
SY. 507-8 6-5 L:SERVO REC IN
SY. 508-9 5-4 NOMAL/SEARCH
SY. 507-7 6-6 L:PINCH SOL ON
SY. 507-10 6-3 L:RESET IN
SY. 507-4 6-9 CAPSTAN 2FG OUT
6-4 NC
SY. 507-6 6-7 L:SERVO LOCK OUT
R1 0 H: SEARCH SP 0
R1 1 H: SEARCH SP 1
R1 2 H: SEARCH SP 2
R1 3 H: SEARCH SP 3
R2 0 L: INSTANT ADJ
R2 1 H: 1/10 SPEED
R2 2 L: REV COM
R2 3 EIA/CCIR
R3 0 L: SERVO REC
R3 1 L: DRUM LOCK IN
R3 2 L: X10 SPD
K 0 PB CTL
K 1 TRACON VD
K 2 NORMAL/SEARCH
K 3 L: PINCH ON
E X
X
RESET
IRQ CAP 2FG
TC CAP 4FG
18
MB88505-441M
VCC
H: STOP S
CAPS F/R
NORMAL/S
SEARVO L
H: V2 ON
H: CTL MU
L: FRAMIN
L: SV-SW
FWD/
TP3
TP4
TP5
TP6
TP8
TP10
TP11
TP15
TP17
TP24
TP26
TP29
* A1 SV-74PCB
* CN401
* CN412
* CN403
* CN411
* CN413
* CN402
* CN404
* CN410
* CN407
* CN406
* CN405
* IC1 μPC324C
* IC2 NJM4558S
* IC3 NJM4558D-D
* IC4 TC4081BP
* IC5 TC4053BP
* IC6 TC4053BP
* IC8 μPC324C
* IC9 μPC324C
* IC10 μPC339C
* IC11 TC4030BP
* IC12 μPC358C
* IC13 TC4053BP
* IC14 MB84013M
* IC15 TC4001UBP
* IC16 TC4053BP
* IC17 CX-194B-5
* IC18 MB88505-547M
* IC19 TC4030BP
* IC20 TC4053BP
* IC22 μPC358C

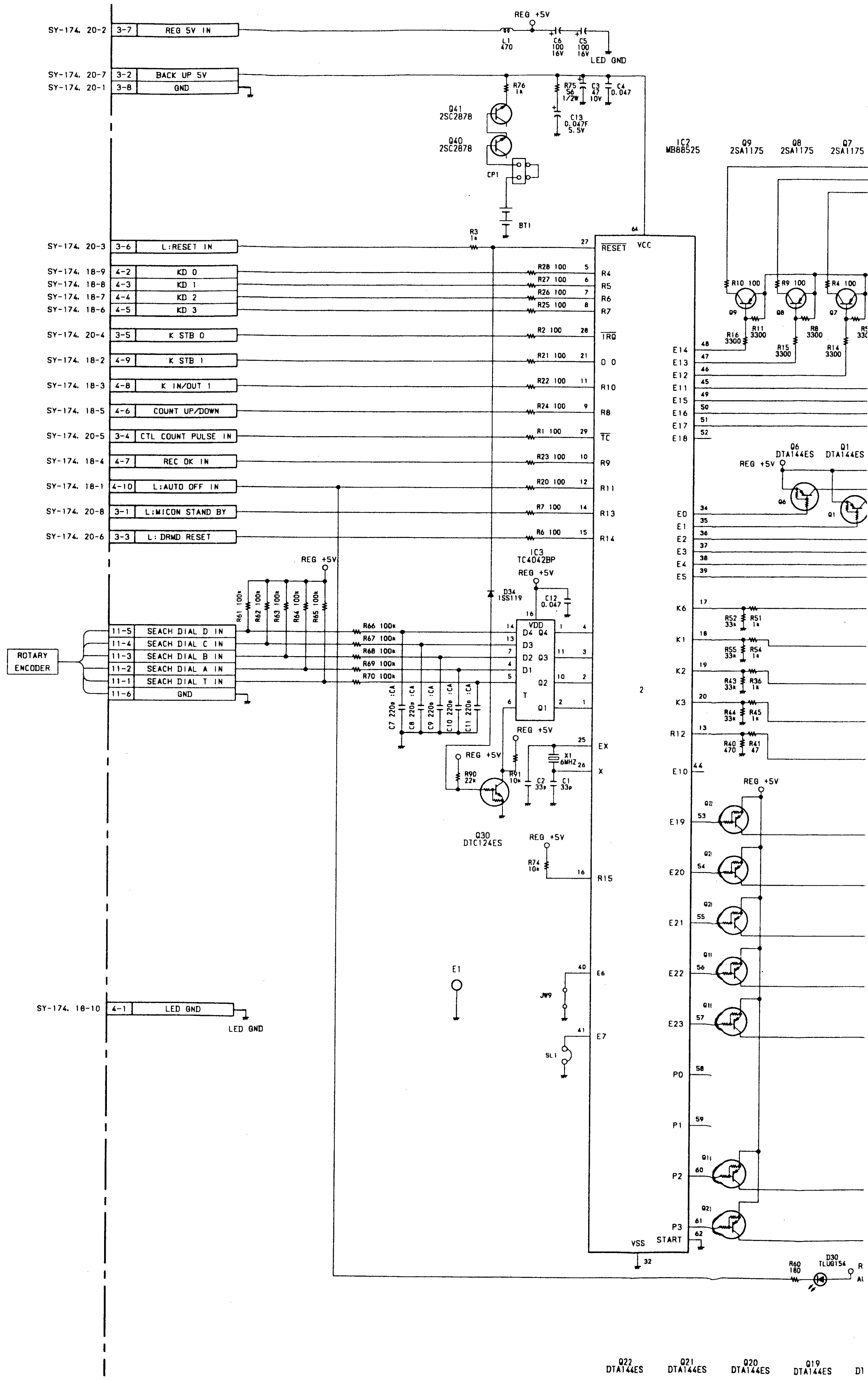

SW PULSE OUT (X) 7-9 VO. 103-4
SW PULSE OUT (G) 7-8 VO. 103-5
L:DRUM ROTATE OUT 5-9 SY. 508-4
REG 12V OUT 4-1
L:DRUM STOP IN 5-10 SY. 508-3
SYS 12V IN 2-4
DRUM ERROR OUT 4-5 M1002. 2
DRUM CURR IN (X) 4-2 M1002. 1
DRUM CURR IN (G) 4-3 NC
DRUM ERROR (G) 4-4 NC
SYS GND 2-5 DC. 001-1
CAP MOTTOR (G) 3-4 M1001. 5
VCC 12V OUT 3-5 M1001. 7
CAP MOTTOR ERROR OUT 3-3 M1001. 8
DEW SENSOR IN 10-3
DEW SENSOR OUT 5-12 SY. 508-1
CAP M F/R COM 3-1 M1001. 6
L:SEARCH/STILL OUT 7-10 VO. 103-3
CAP STOP L 5-6 SY. 508-7
SV LOCK 7-11 VO. 103-2
L:CTL MUTING OUT 5-1 SY. 508-12
SY FWD/ REV DET 5-2 SY. 508-11
VY FWD/ REV 7-2 VO. 103-11
RV102:INSTANT START
RV100, 105:CAPSTAN FREE SPEED
RV106:CAPSTAN STOP SERVO
RV107:CAPSTAN STOP SERVO
RV101:CAPSTAN SEARCH SPEED
MB88505-441M
REG 12V
5V (A)
TP12
TP16
TP18
TP19
TP21
TP22
TP25
TP26
TP27
TP11
Q403 2SC2785-F
Q404 2SC2785-F
Q4 2SD1682-T
Q3 2SA768-B
Q2 2SA1175-F
Q5 2SD774-3
R42 1.5 3W
Q111 2SA768-B
Q113 2SD1682-T
Q112 2SA1175-F
Q109 DTC144
Q206 DTC124XS
Q205 DTC124XS
Q101 DTC124XS
Q102 2SC2785-F
Q103 DTC124XS
Q104 2SA1175-F
Q106 2SC2785-F
Q107 2SK523-L2
Q108 DTC124XS
Q114 DTA124
Q202 DTC124XS
Q203 DTC124XS
Q204 DTC124XS
Q1 2SC2785-F
R170 8.2k 2.54 OR 5.04
R45 (JW248)
R46 (JW247) 1 1/4W
(JW249)
JW265
D600 1SS119

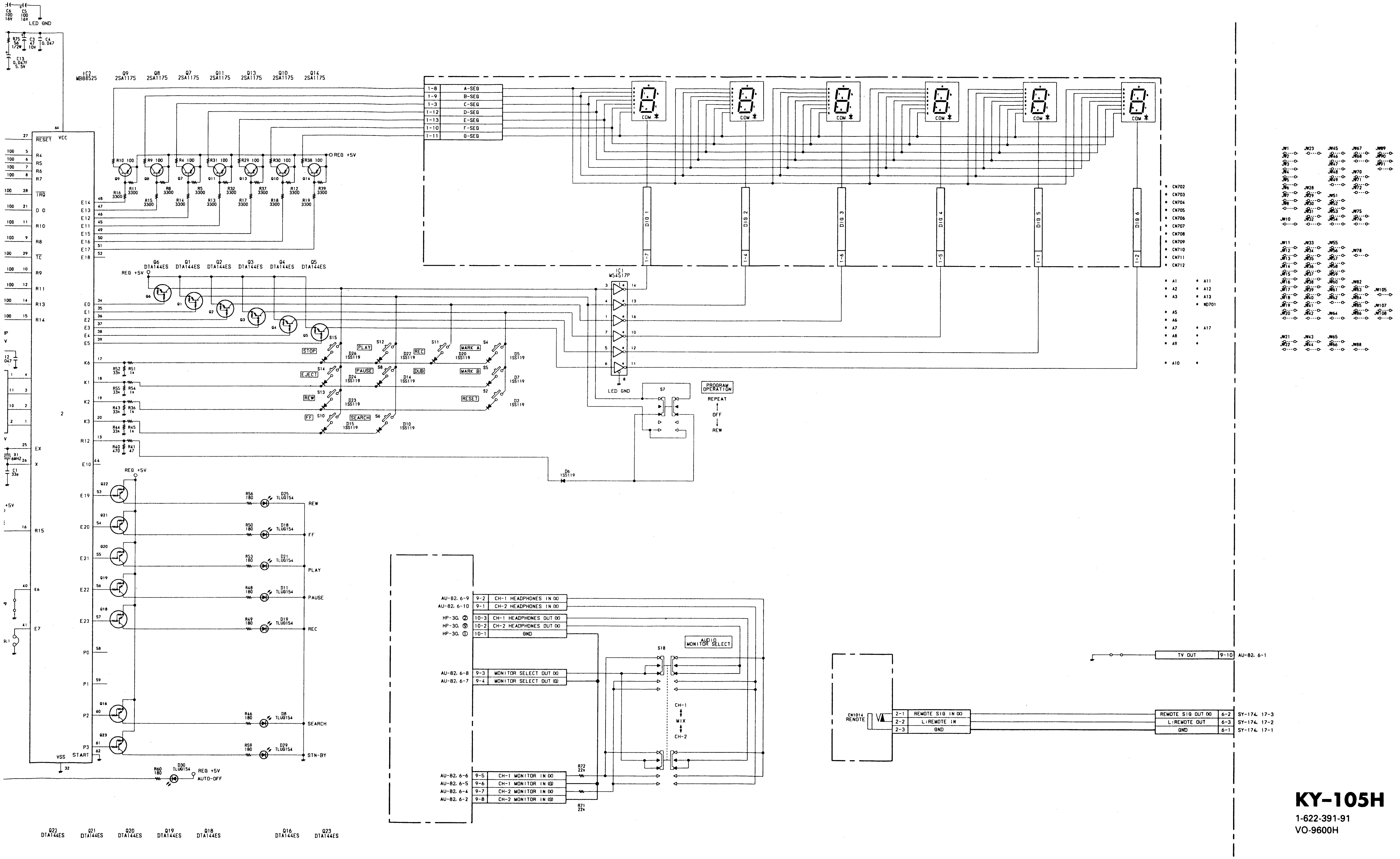
注意　：⚠印のついた部品は安全性を維持するために
重要な部品です。従って交換する時は必ず指
定の部品を使って下さい。

Note : **The ⚠-marked components are critical to safety.**
Replace only with same components as specified.

SV-93H
1-622-386-91, 92
VO-9600H

KY-105H: FUNCTION KEY/DISPLAY


SY-174. 20-2 3-7 REG 5V IN
SY-174. 20-7 3-2 BACK UP 5V
SY-174. 20-1 3-8 GND
SY-174. 20-3 3-6 L:RESET IN
SY-174. 18-9 4-2 KD 0
SY-174. 18-8 4-3 KD 1
SY-174. 18-7 4-4 KD 2
SY-174. 18-6 4-5 KD 3
SY-174. 20-4 3-5 K STB 0
SY-174. 18-2 4-9 K STB 1
SY-174. 18-3 4-8 K IN/OUT 1
SY-174. 18-5 4-6 COUNT UP/DOWN
SY-174. 20-5 3-4 CTL COUNT PULSE IN
SY-174. 18-4 4-7 REC OK IN
SY-174. 18-1 4-10 L:AUTO OFF IN
SY-174. 20-8 3-1 L:MICON STAND BY
SY-174. 20-6 3-3 L: DRMD RESET
ROTARY ENCODER
11-5 SEACH DIAL D IN
11-4 SEACH DIAL C IN
11-3 SEACH DIAL B IN
11-2 SEACH DIAL A IN
11-1 SEACH DIAL T IN
11-6 GND
SY-174. 18-10 4-1 LED GND
LED GND
REG +5V
L1 470
C6 100 16V
C5 100 16V
R76 1k
R75 56 1/2W
C3 47 10V
C4 0.047
C13 0.047F 5.5V
Q41 2SC2878
Q40 2SC2878
CP1
BT1
R3 1k
IC2 MB88525
RESET
VCC
R28 100
R27 100
R26 100
R25 100
R2 100
R21 100
R22 100
R24 100
R1 100
R23 100
R20 100
R7 100
R6 100
R4
R5
R6
R7
IRQ
O 0
R10
R8
TC
R9
R11
R13
R14
EX
X
R15
E6
E7
VSS
START
E14
E13
E12
E11
E15
E16
E17
E18
E0
E1
E2
E3
E4
E5
K6
K1
K2
K3
R12
E10
E19
E20
E21
E22
E23
P0
P1
P2
P3
Q9 2SA1175
Q8 2SA1175
Q7 2SA1175
R10 100
R9 100
R4 100
R16 3300
R11 3300
R15 3300
R8 3300
R14 3300
Q6 DTA144ES
Q1 DTA144ES
R52 33k
R51 1k
R55 33k
R54 1k
R43 33k
R36 1k
R44 33k
R45 1k
R40 470
R41 47
IC3 TC4042BP
VDD
D4 Q4
D3
D2 Q3
D1
Q2
T
Q1
D34 1SS119
C12 0.047
R61 100k
R62 100k
R63 100k
R64 100k
R65 100k
R66 100k
R67 100k
R68 100k
R69 100k
R70 100k
C7 220p :CA
C8 220p :CA
C9 220p :CA
C10 220p :CA
C11 220p :CA
R90 22k
R91 10k
Q30 DTC124ES
X1 6MHZ
C2 33p
C1 33p
R74 10k
E1
JW9
SL1
R60 180
D30 TLU8154
Q22 DTA144ES
Q21 DTA144ES
Q20 DTA144ES
Q19 DTA144ES


IC2 MB88525
Q9 2SA1175
Q8 2SA1175
Q7 2SA1175
Q11 2SA1175
Q13 2SA1175
Q10 2SA1175
Q14 2SA1175
REG +5V
LED GND
RESET
VCC
1-8 A-SEG
1-9 B-SEG
1-3 C-SEG
1-12 D-SEG
1-13 E-SEG
1-10 F-SEG
1-11 G-SEG
COM
DIG 1
DIG 2
DIG 3
DIG 4
DIG 5
DIG 6
IC1 M54517P
Q6 DTA144ES
Q1 DTA144ES
Q2 DTA144ES
Q3 DTA144ES
Q4 DTA144ES
Q5 DTA144ES
STOP
PLAY
REC
MARK A
EJECT
PAUSE
DUB
MARK B
REW
RESET
FF
SEARCH
1SS119
PROGRAM OPERATION
REPEAT
OFF
REW
S7
D6 1SS119
TLUG154
REW
FF
PLAY
PAUSE
REC
SEARCH
STN-BY
AUTO-OFF
START
VSS
Q22 DTA144ES
Q21 DTA144ES
Q20 DTA144ES
Q19 DTA144ES
Q18 DTA144ES
Q16 DTA144ES
Q23 DTA144ES
AU-82, 6-9 9-2 CH-1 HEADPHONES IN
AU-82, 6-10 9-1 CH-2 HEADPHONES IN
HP-30, ② 10-3 CH-1 HEADPHONES OUT
HP-30, ③ 10-2 CH-2 HEADPHONES OUT
HP-30, ① 10-1 GND
AU-82, 6-8 9-3 MONITOR SELECT OUT
AU-82, 6-7 9-4 MONITOR SELECT OUT
AU-82, 6-6 9-5 CH-1 MONITOR IN
AU-82, 6-5 9-6 CH-1 MONITOR IN
AU-82, 6-4 9-7 CH-2 MONITOR IN
AU-82, 6-2 9-8 CH-2 MONITOR IN
AUDIO MONITOR SELECT
S18
CH-1
MIX
CH-2
R72 22k
R71 22k
TV OUT 9-10 AU-82, 6-1
CN1014 REMOTE
2-1 REMOTE SIG IN
2-2 L:REMOTE IN
2-3 GND
REMOTE SIG OUT 6-2 SY-174, 17-3
L:REMOTE OUT 6-3 SY-174, 17-2
GND 6-1 SY-174, 17-1
CN702
CN703
CN704
CN705
CN706
CN707
CN708
CN709
CN710
CN711
CN712
ND701

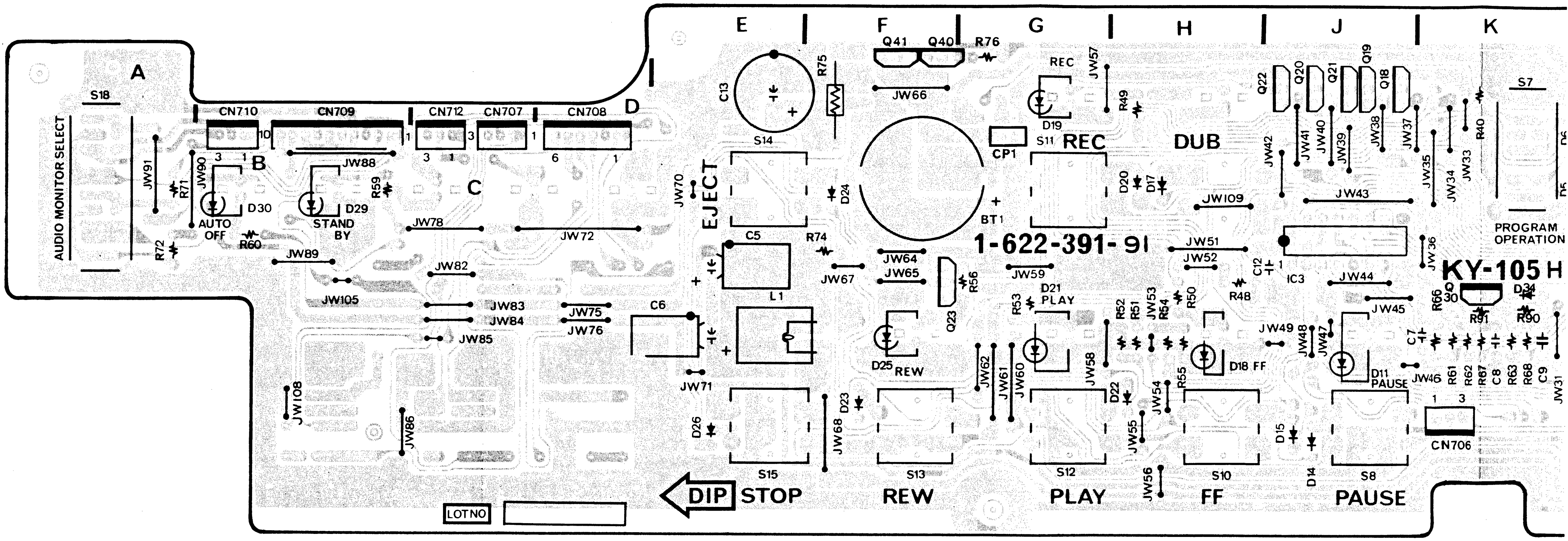
KY-105H

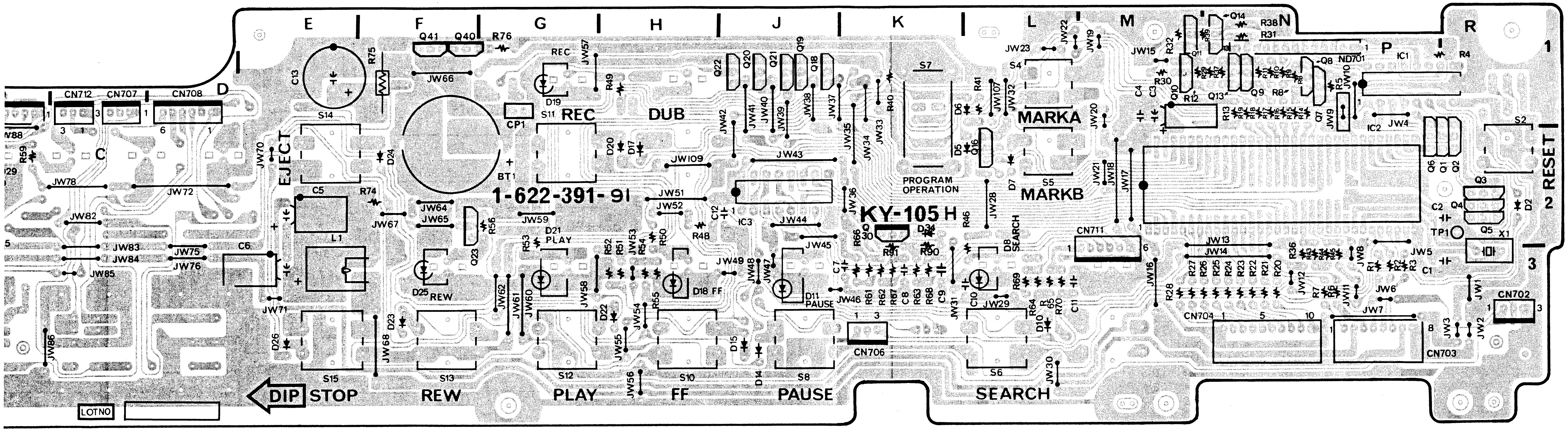
1-622-391-91
VO-9600H

KY-105H: FUNCTION KEY/DISPLAY

KY-105H (1-622-391-91) C

CN702	R-3
CN703	P-3
CN704	M-3
CN706	K-3
CN708	D-1
CN709	B-1
CN710	B-1
CN711	M-2
CN712	C-1
CP1	G-1
D2	R-2
D5	K-2
D6	K-1
D7	L-2
D8	L-2
D10	L-3
D11	J-3
D14	J-3
D15	J-3
D18	H-3
D19	G-1
D20	H-2
D21	G-2
D22	H-3
D23	F-3
D24	F-2
D25	F-3
D26	E-3
D29	B-2
D30	B-2
D34	K-2
IC1	P-1
IC2	P-2
IC3	J-2
L1	E-2
Q1	R-2
Q2	R-2
Q3	R-2
Q4	R-2
Q5	R-2
Q6	P-2
Q7	N-1
Q8	N-1
Q9	N-1
Q10	M-1
Q11	M-1
Q13	N-1
Q14	N-1
Q16	L-2
Q18	J-1
Q19	J-1
Q20	J-1
Q21	J-1
Q22	J-1
Q23	F-2
Q30	K-2
Q40	F-1
Q41	F-1
S2	R-1
S4	L-1
S5	L-2
S6	L-3
S7	K-1
S8	J-3
S10	H-3
S11	G-1
S12	G-3
S13	F-3
S14	E-1
S15	E-3
S18	A-1
TP1	P-2
X1	R-2


A
B
C
D
E
F
G
H
J
K
S18
AUDIO MONITOR SELECT
CN710
CN709
CN712
CN707
CN708
AUTO OFF
D30
STAND BY
D29
JW88
JW78
JW72
JW89
JW82
JW105
JW83
JW84
JW85
JW75
JW76
JW108
JW86
EJECT
S14
C13
R75
Q41
Q40
R76
JW66
C5
L1
C6
R74
JW67
JW64
JW65
JW70
JW71
D24
D26
D23
S15
STOP
DIP
LOT NO
JW68
S13
REW
D25 REW
Q23
R56
BT1
CP1
S11 REC
REC
D19
JW57
R49
DUB
1-622-391-91
JW59
D21 PLAY
R53
JW62
JW61
JW60
JW58
S12
PLAY
D22
D20
D17
JW109
JW51
JW52
R52
R51
JW53
R54
R50
R48
D18 FF
R55
JW54
JW55
JW56
S10
FF
D15
D14
Q22
Q20
Q21
Q19
Q18
JW42
JW41
JW40
JW39
JW38
JW37
JW43
IC3
C12
JW44
JW45
JW49
JW48
JW47
D11 PAUSE
JW46
S8
PAUSE
R61
R62
R67
C8
R63
R68
C9
C7
CN706
JW35
JW34
JW33
R40
JW36
S7
PROGRAM OPERATION
KY-105H
R66
Q30
D34
R91
R90
JW31


E
F
G
H
J
K
L
M
N
P
R
C
D
1
2
3
CN712
CN707
CN708
CN711
CN702
CN703
CN704
CN706
EJECT
REC
DUB
MARKA
MARKB
PROGRAM OPERATION
RESET
STOP
REW
PLAY
FF
PAUSE
SEARCH
DIP
KY-105 H
1-622-391-91
S14
S11
S7
S4
S5
S2
S15
S13
S12
S10
S8
S6
BT1
CP1
C13
C5
C6
L1
IC1
IC2
IC3
ND701
X1
TP1
Q40
Q41
D19
D21 PLAY
D25 REW
D18 FF
D11 PAUSE
D8 SEARCH
LOTNO

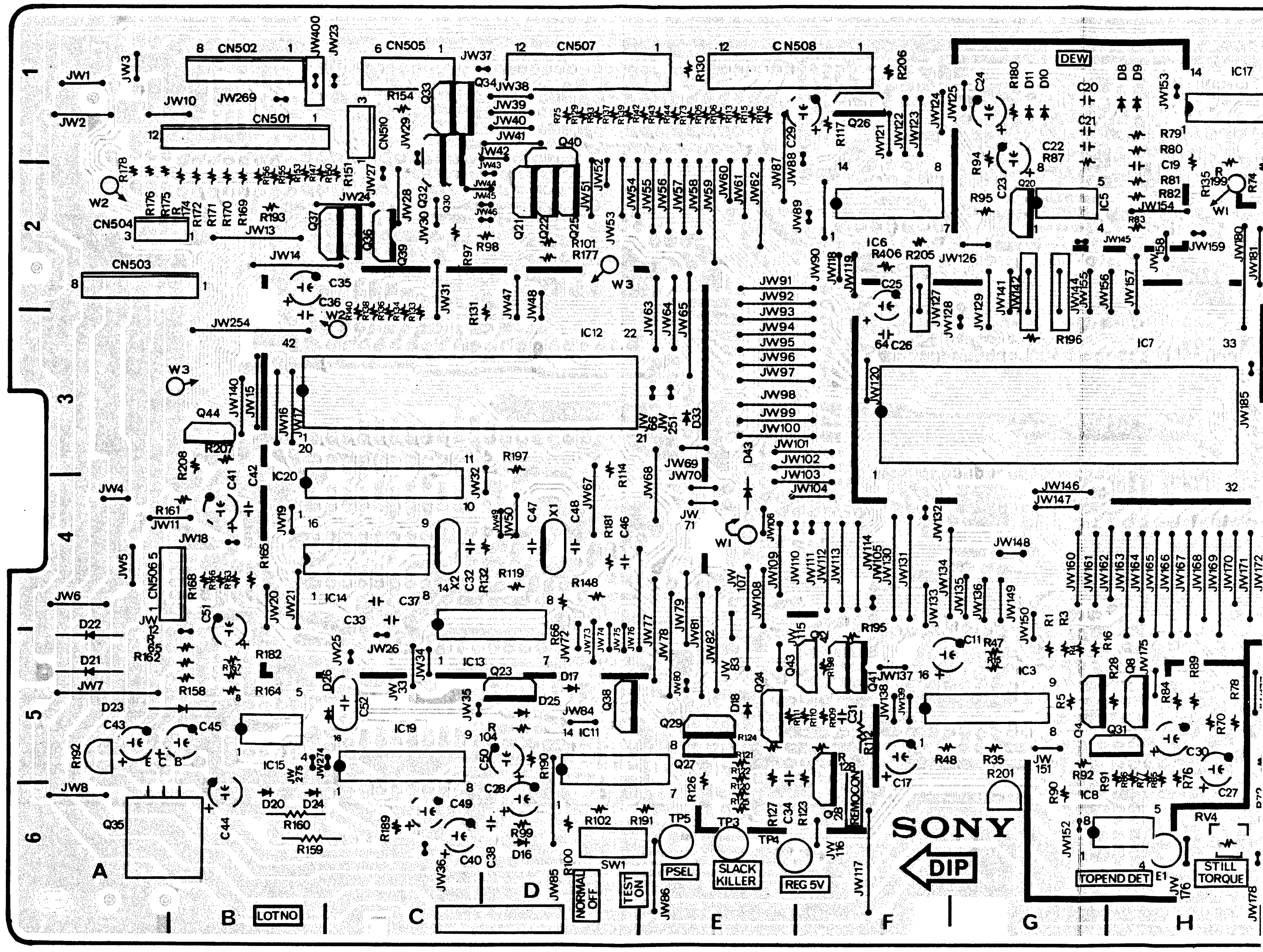
KY-105H

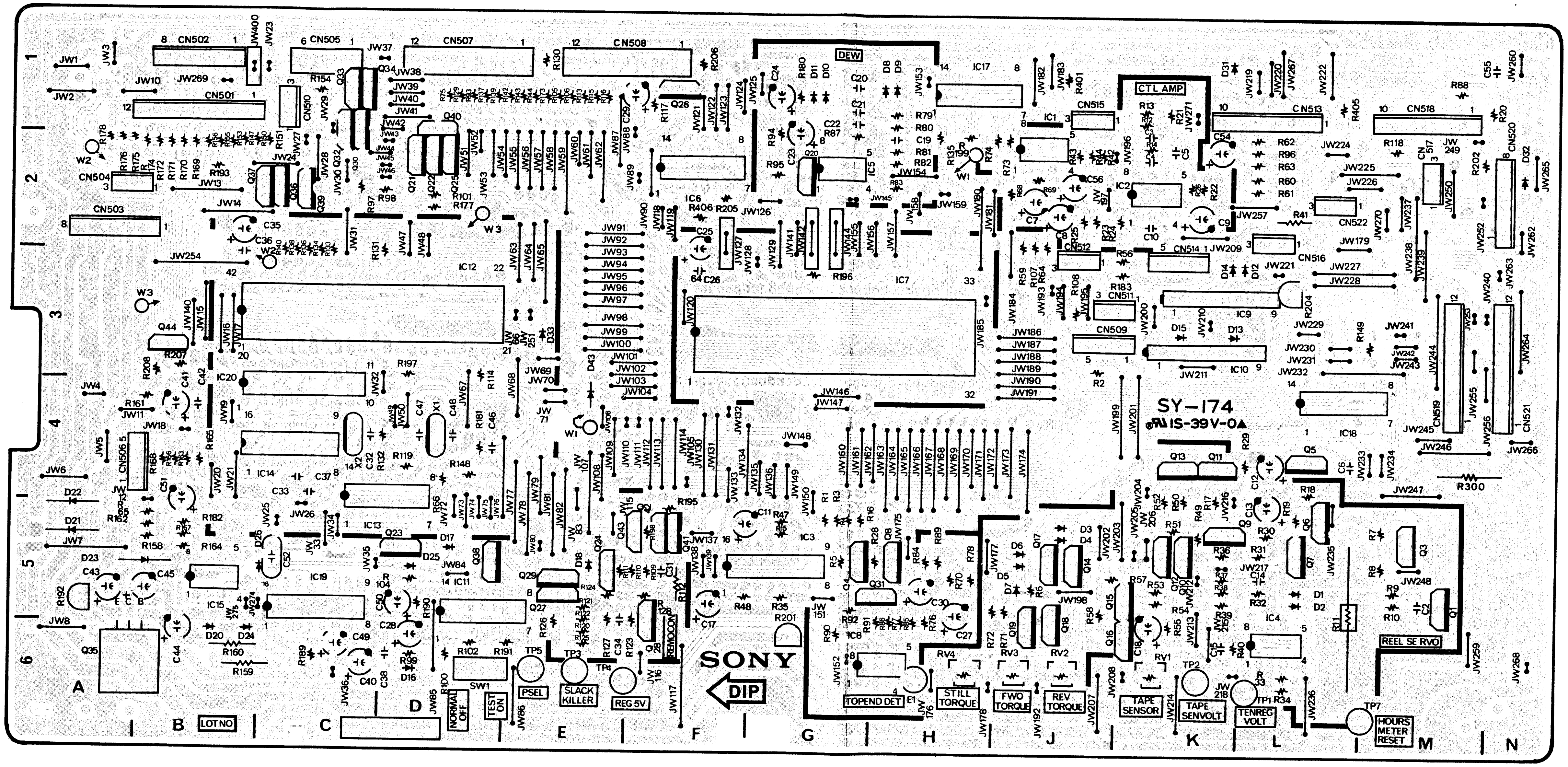
-COMPONENT SIDE-
1-622-391-91
VO-9600H

SY-174: SYSTEM CONTROL

SY-174 (1-641-068-11) C

CN501	B-1	IC6	F-2	RV1	K-6
CN502	B-1	IC7	H-3	RV2	J-6
CN503	A-2	IC8	G-6	RV3	J-6
CN504	A-2	IC9	L-3	RV4	H-6
CN505	C-1	IC10	L-3		
CN506	A-4	IC11	D-5	SW1	D-6
CN507	D-1	IC12	D-3		
CN508	F-1	IC13	C-5	*TP1	L-6
CN509	J-3	IC14	C-4	*TP2	K-6
CN510	C-1	IC15	B-5	*TP3	E-6
CN511	K-3	IC17	H-1	*TP4	E-6
CN512	J-2	IC18	L-4	*TP5	E-6
CN513	L-1	IC19	C-5	*TP7	M-6
CN514	K-2	IC20	B-4		
CN515	J-1			X1	D-4
CN516	L-2	Q1	M-5	X2	C-4
CN517	M-2				
CN518	M-1	Q3	M-5		
CN519	M-4	Q4	G-5		
CN520	N-1	Q5	L-4		
CN521	N-4	Q6	L-5		
CN522	L-2	Q7	L-5		
		Q8	H-5		
D1	L-5	Q9	L-5		
D2	L-5	Q10	K-5		
D3	J-5	Q11	K-4		
D4	J-5	Q12	K-5		
D5	J-5	Q13	K-4		
D6	J-5	Q14	J-5		
D7	J-5	Q15	J-5		
D8	H-1	Q16	J-6		
D9	H-1	Q17	J-5		
D10	G-1	Q18	J-5		
D11	G-1	Q19	J-5		
D12	L-3	Q20	G-2		
D13	K-3	Q21	D-2		
D14	K-3	Q22	D-2		
D15	K-3	Q23	D-5		
D16	D-6	Q24	E-5		
D17	D-5	Q25	D-2		
D18	E-5	Q26	F-1		
D20	B-6	Q27	E-5		
D21	A-5	Q28	F-6		
D22	A-4	Q29	E-5		
D23	A-5	Q30	C-2		
D24	B-6	Q31	H-5		
D25	D-5	Q32	C-2		
D26	C-5	Q33	C-1		
D31	K-1	Q34	D-1		
D32	N-2	Q35	A-6		
D33	E-3	Q36	C-2		
D43	E-3	Q37	B-2		
		Q38	D-5		
*E1	H-6	Q39	C-2		
		Q40	D-1		
IC1	J-1	Q41	F-5		
IC2	K-2	Q42	F-5		
IC3	G-5	Q43	E-5		
IC4	L-5	Q44	B-3		
IC5	G-2				


1
2
3
4
5
6
A
B
C
D
E
F
G
H
CN501
CN502
CN503
CN504
CN505
CN506
CN507
CN508
CN510
IC6
IC7
IC12
IC13
IC14
IC15
IC17
IC19
IC20
IC3
IC5
DEW
LOTNO
NORMAL OFF
TEST ON
SW1
PSEL
TP5
SLACK KILLER
TP3
REG 5V
TP4
REMOCON
SONY
DIP
TOPEND DET
E1
STILL TORQUE
RV4


DEW
CTL AMP
SY-174
IS-39V-0
SONY
DIP
LOT NO
NORMAL OFF
TEST ON
PSEL
SLACK KILLER
REG 5V
REMOCON
TOPEND DET
STILL TORQUE
FWD TORQUE
REV TORQUE
TAPE SENSOR
TAPE SENVOLT
TENREG VOLT
HOURS METER RESET
REEL SE RVO
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC17
IC18
IC19
IC20
CN501
CN502
CN503
CN504
CN505
CN506
CN507
CN508
CN509
CN510
CN511
CN512
CN513
CN514
CN515
CN516
CN517
CN518
CN519
CN520
CN521
CN522
SW1
TP1
TP2
TP3
TP4
TP5
TP7
RV1
RV2
RV3
RV4
1
2
3
4
5
6
A
B
C
D
E
F
G
H
J
K
L
M
N

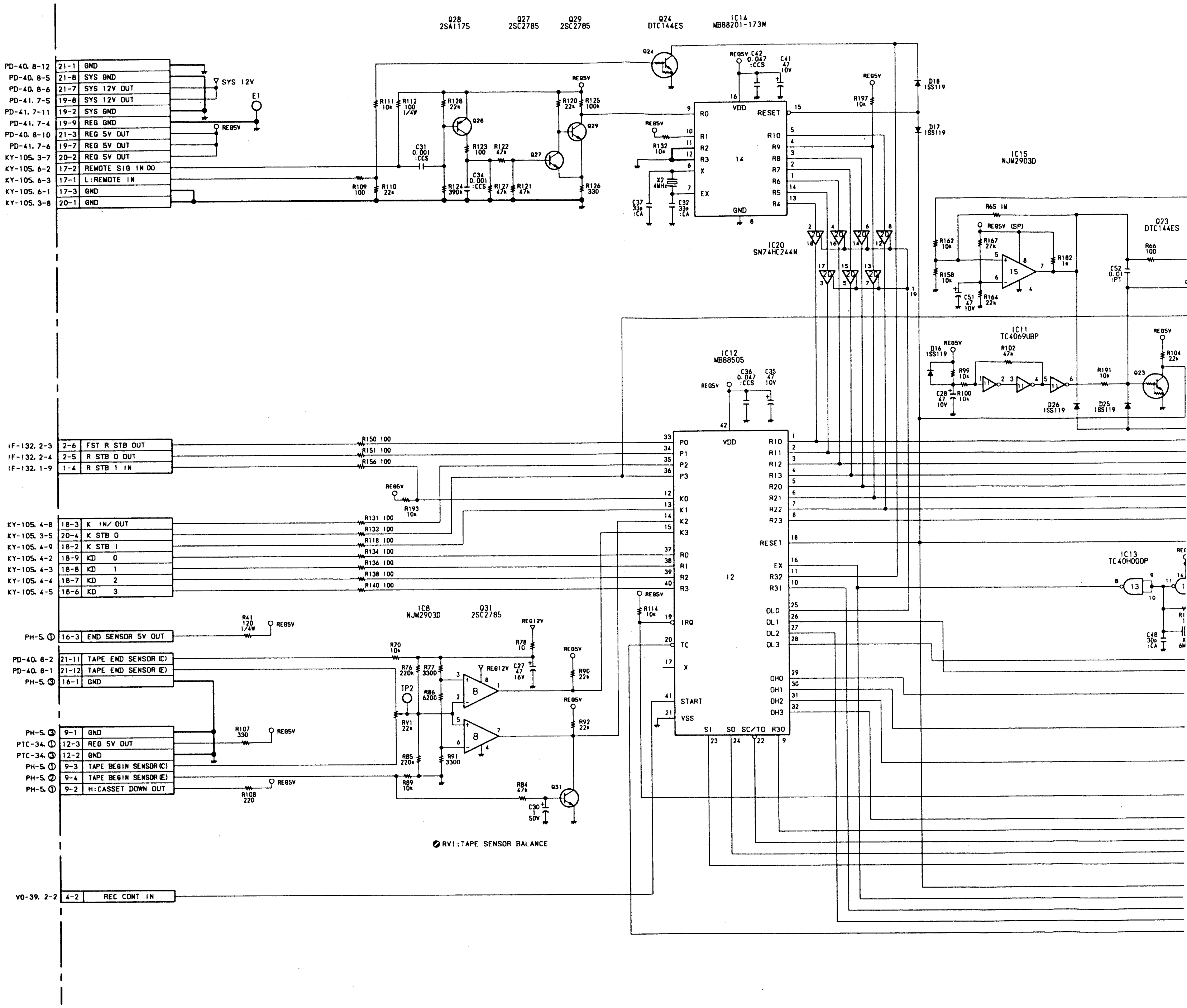
SY-174

-COMPONENT SIDE-

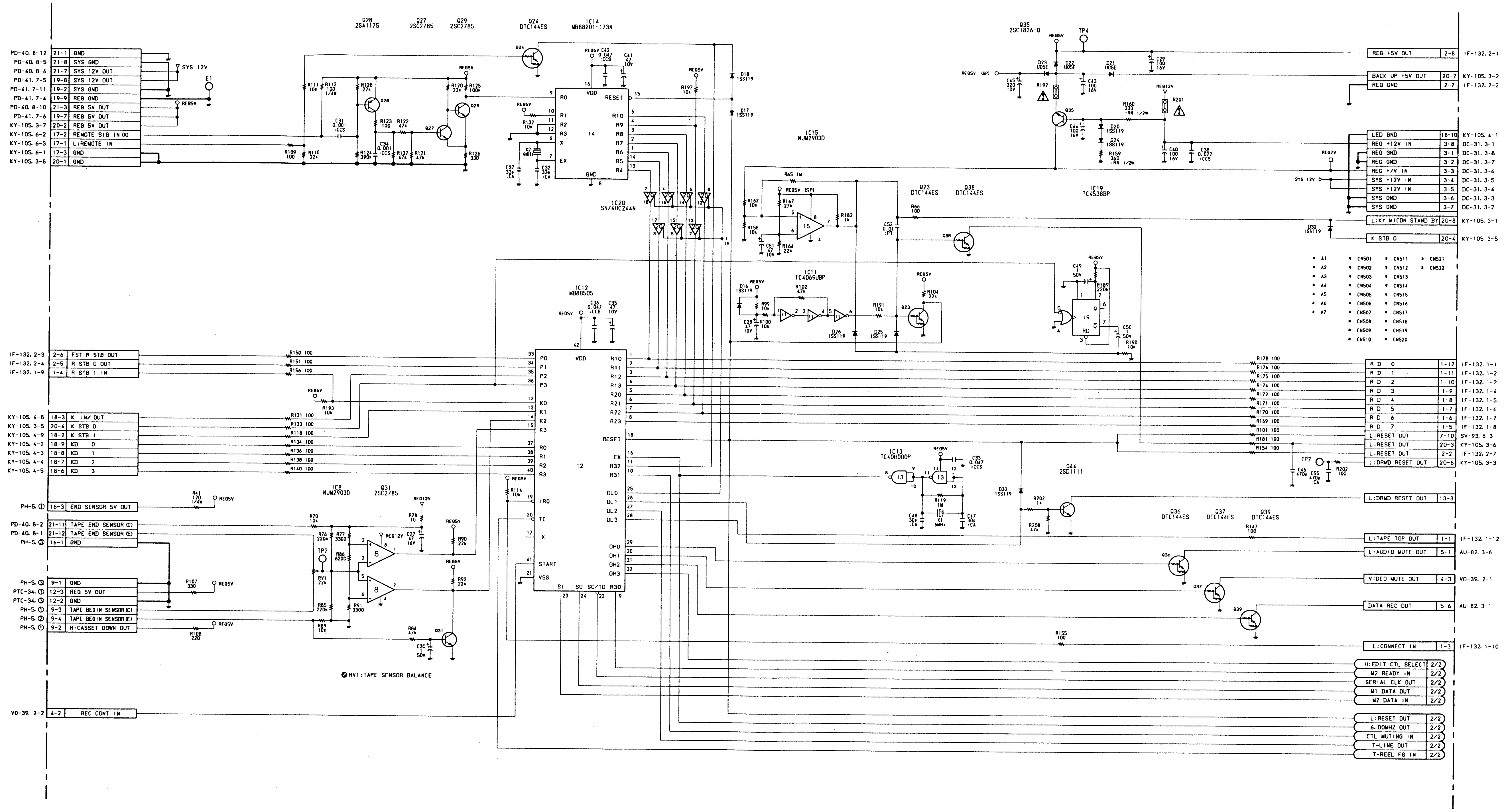
1-641-068-11

VO-9600H

SY-174(1/2): SYSTEM CONTROL


PD-40. 8-12 | 21-1 | GND
PD-40. 8-5 | 21-8 | SYS GND
PD-40. 8-6 | 21-7 | SYS 12V OUT
PD-41. 7-5 | 19-8 | SYS 12V OUT
PD-41. 7-11 | 19-2 | SYS GND
PD-41. 7-4 | 19-9 | REG GND
PD-40. 8-10 | 21-3 | REG 5V OUT
PD-41. 7-6 | 19-7 | REG 5V OUT
KY-105. 3-7 | 20-2 | REG 5V OUT
KY-105. 6-2 | 17-2 | REMOTE SIG IN (X)
KY-105. 6-3 | 17-1 | L:REMOTE IN
KY-105. 6-1 | 17-3 | GND
KY-105. 3-8 | 20-1 | GND
SYS 12V
E1
IF-132. 2-3 | 2-6 | FST R STB OUT
IF-132. 2-4 | 2-5 | R STB 0 OUT
IF-132. 1-9 | 1-4 | R STB 1 IN
KY-105. 4-8 | 18-3 | K IN/ OUT
KY-105. 3-5 | 20-4 | K STB 0
KY-105. 4-9 | 18-2 | K STB 1
KY-105. 4-2 | 18-9 | KD 0
KY-105. 4-3 | 18-8 | KD 1
KY-105. 4-4 | 18-7 | KD 2
KY-105. 4-5 | 18-6 | KD 3
PH-5. ① | 16-3 | END SENSOR 5V OUT
PD-40. 8-2 | 21-11 | TAPE END SENSOR (C)
PD-40. 8-1 | 21-12 | TAPE END SENSOR (E)
PH-5. ③ | 16-1 | GND
PH-5. ③ | 9-1 | GND
PTC-34. ① | 12-3 | REG 5V OUT
PTC-34. ③ | 12-2 | GND
PH-5. ① | 9-3 | TAPE BEGIN SENSOR (C)
PH-5. ② | 9-4 | TAPE BEGIN SENSOR (E)
PH-5. ① | 9-2 | H:CASSET DOWN OUT
VO-39. 2-2 | 4-2 | REC CONT IN
Q28 2SA1175
Q27 2SC2785
Q29 2SC2785
Q24 DTC144ES
IC14 MB88201-173M
IC20 SN74HC244N
IC15 NJM2903D
Q23 DTC144ES
IC11 TC4069UBP
IC12 MB88505
IC13 TC40H000P
IC8 NJM2903D
Q31 2SC2785
D18 1SS119
D17 1SS119
D16 1SS119
D26 1SS119
D25 1SS119
X2 4MHz
TP2
RV1
RV1:TAPE SENSOR BALANCE
REG5V
REG12V
RESET
START
VSS
VDD
IRQ
TC

SY-174(1/2): SYSTEM CONTROL

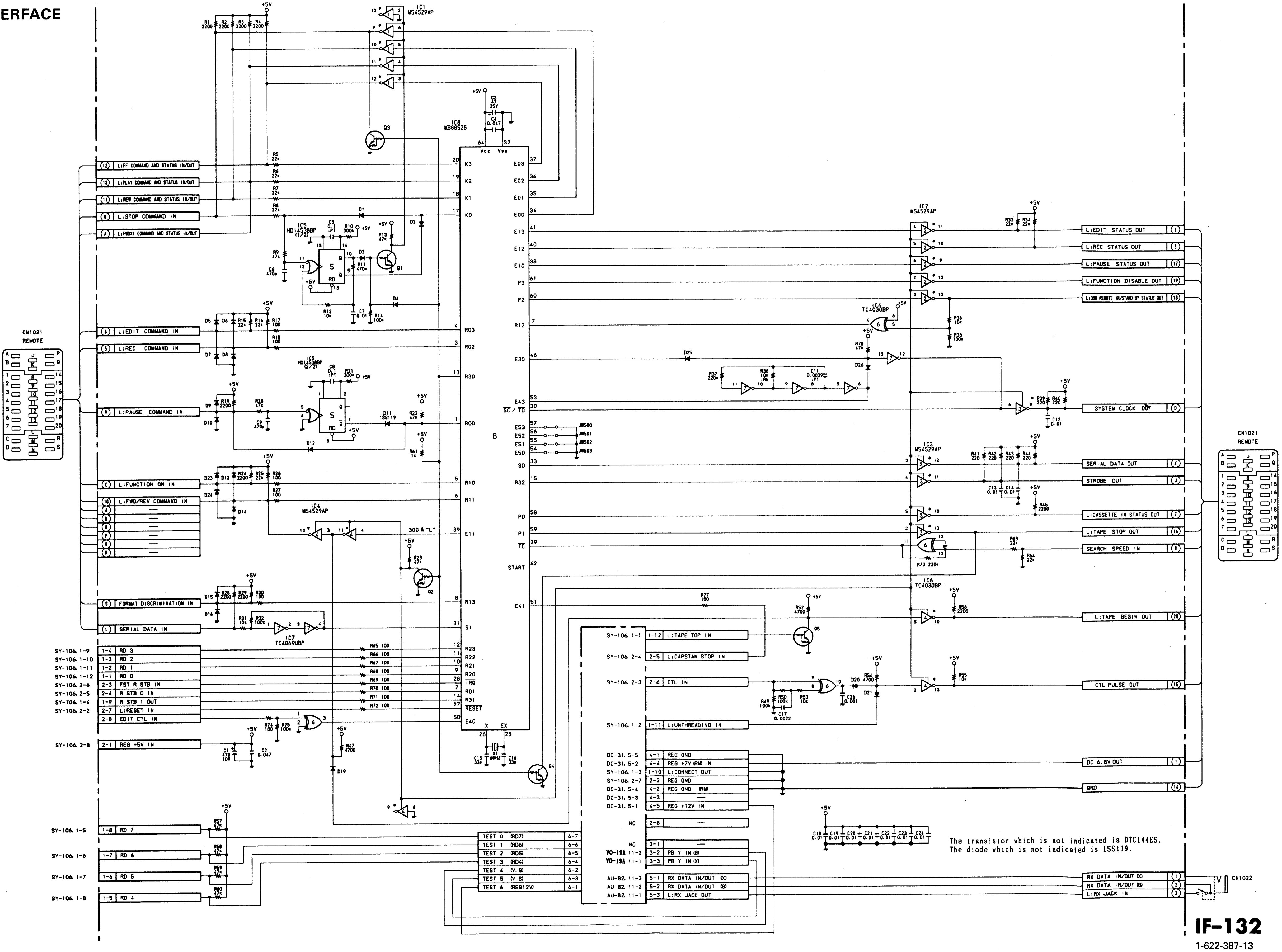

Q28 2SA1175
Q27 2SC2785
Q29 2SC2785
Q24 DTC144ES
IC14 MB88201-173N
IC20 SN74HC244N
IC15 NJW2903D
IC11 TC4069UBP
Q23 DTC144ES
Q38 DTC144ES
IC19 TC4538BP
Q35 2SC1826-Q
IC12 MB88505
IC8 NJW2903D
Q31 2SC2785
IC13 TC40H000P
Q44 2SD1111
Q36 DTC144ES
Q37 DTC144ES
Q39 DTC144ES
RV1:TAPE SENSOR BALANCE
GND
SYS GND
SYS 12V OUT
REG GND
REG 5V OUT
REMOTE SIG IN
L:REMOTE IN
FST R STB OUT
R STB 0 OUT
R STB 1 IN
K IN/OUT
K STB 0
K STB 1
KD 0
KD 1
KD 2
KD 3
END SENSOR 5V OUT
TAPE END SENSOR (C)
TAPE END SENSOR (E)
TAPE BEGIN SENSOR (C)
TAPE BEGIN SENSOR (E)
H:CASSET DOWN OUT
REC CONT IN
REG +5V OUT
BACK UP +5V OUT
LED GND
REG +12V IN
REG +7V IN
SYS +12V IN
L:KY MICON STAND BY
R D 0
R D 1
R D 2
R D 3
R D 4
R D 5
R D 6
R D 7
L:RESET OUT
L:DRMD RESET OUT
L:TAPE TOP OUT
L:AUDIO MUTE OUT
VIDEO MUTE OUT
DATA REC OUT
L:CONNECT IN
H:EDIT CTL SELECT
M2 READY IN
SERIAL CLK OUT
M1 DATA OUT
M2 DATA IN
6.00MHZ OUT
CTL MUTING IN
T-LINE OUT
T-REEL FG IN

SY-174(1/2)
1-641-068-11
VO-9600H

注意 ：⚠印のついた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

Note ： **The ⚠-marked components are critical to safety.**
Replace only with same components as specified.

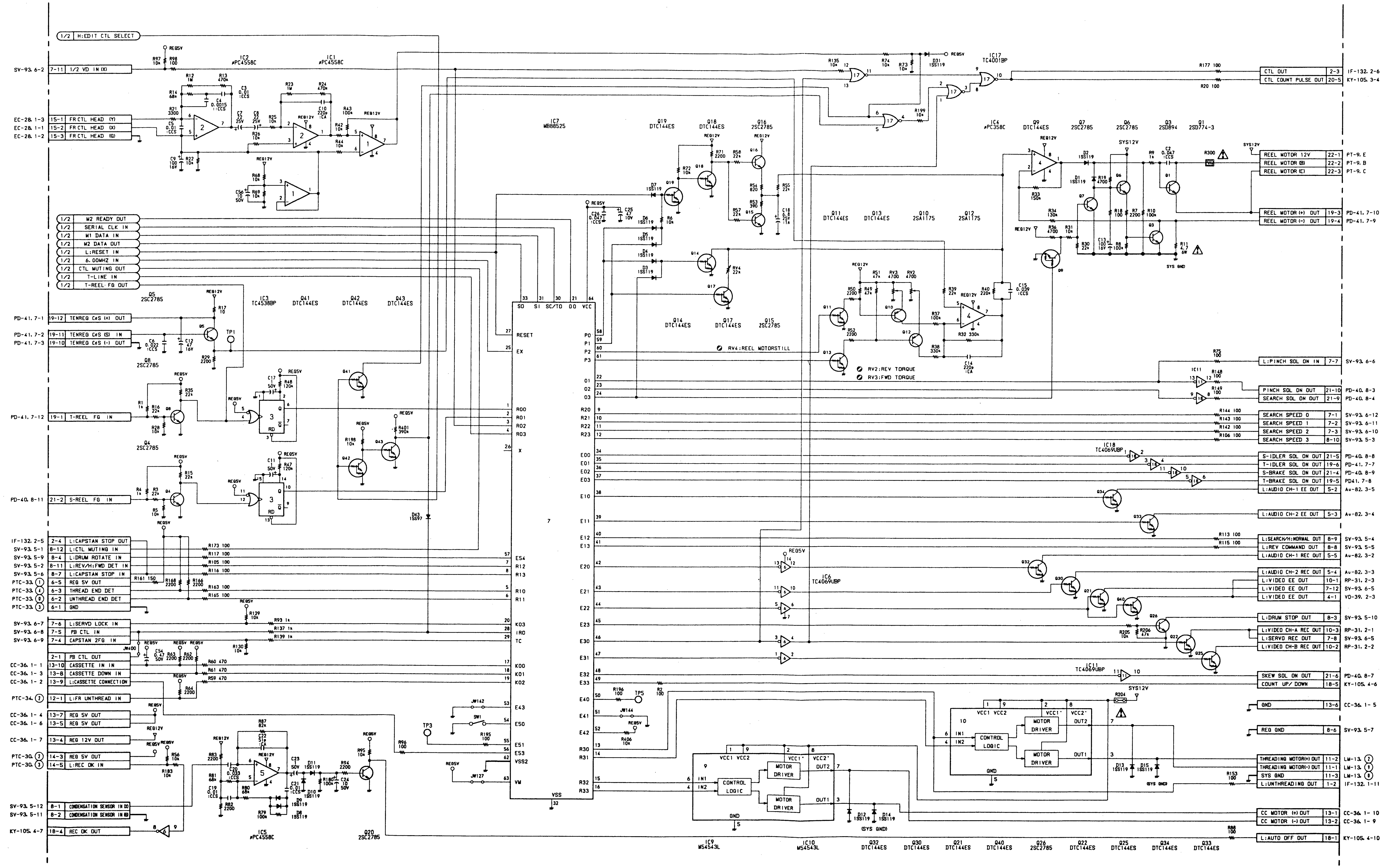
IF-132:33P INTERFACE


CN1021 REMOTE
IC1 M54529AP
IC8 MB88525
IC2 M54529AP
IC3 M54529AP
IC4 M54529AP
IC5 HD14538BP
IC6 TC4030BP
IC7 TC4069UBP
L:FF COMMAND AND STATUS IN/OUT
L:PLAY COMMAND AND STATUS IN/OUT
L:REW COMMAND AND STATUS IN/OUT
L:STOP COMMAND IN
L:FWD(X1) COMMAND AND STATUS IN/OUT
L:EDIT COMMAND IN
L:REC COMMAND IN
L:PAUSE COMMAND IN
L:FUNCTION ON IN
L:FWD/REV COMMAND IN
FORMAT DISCRIMINATION IN
SERIAL DATA IN
L:EDIT STATUS OUT
L:REC STATUS OUT
L:PAUSE STATUS OUT
L:FUNCTION DISABLE OUT
L:300 REMOTE IN/STAND-BY STATUS OUT
SYSTEM CLOCK OUT
SERIAL DATA OUT
STROBE OUT
L:CASSETTE IN STATUS OUT
L:TAPE STOP OUT
SEARCH SPEED IN
L:TAPE BEGIN OUT
CTL PULSE OUT
DC 6.8V OUT
GND
RX DATA IN/OUT
L:RX JACK IN
CN1022
L:TAPE TOP IN
L:CAPSTAN STOP IN
CTL IN
L:UNTHREADING IN
REG GND
REG +7V IN
L:CONNECT OUT
REG +12V IN
PB Y IN
RX DATA IN/OUT
L:RX JACK OUT
RD 3
RD 2
RD 1
RD 0
FST R STB IN
R STB 0 IN
R STB 1 OUT
L:RESET IN
EDIT CTL IN
REG +5V IN
RD 7
RD 6
RD 5
RD 4
TEST 0
TEST 1
TEST 2
TEST 3
TEST 4
TEST 5
TEST 6
SY-106
DC-31
VO-19A
AU-82
+5V
X1 4MHz
300 = "L"

The transistor which is not indicated is DTC144ES.
The diode which is not indicated is 1SS119.

IF-132
1-622-387-13
VO-9600H

SY-174(2/2): SYSTEM CONTROL

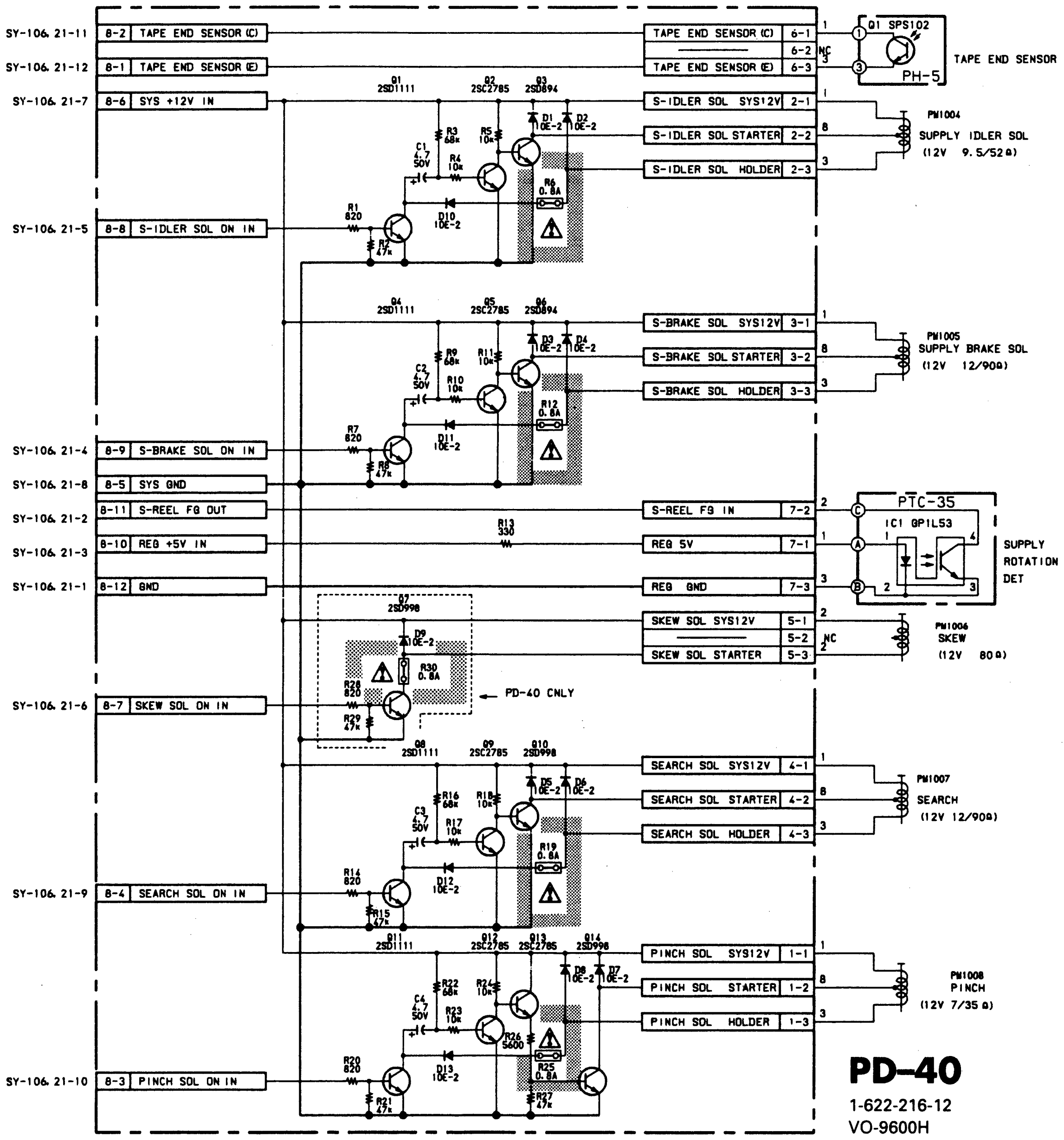

1/2 H:EDIT CTL SELECT
SV-93, 6-2 7-11 1/2 VD IN (X)
EC-28, 1-3 15-1 FR CTL HEAD (Y)
EC-28, 1-1 15-2 FR CTL HEAD (X)
EC-28, 1-2 15-3 FR CTL HEAD (G)
1/2 M2 READY OUT
1/2 SERIAL CLK IN
1/2 M1 DATA IN
1/2 M2 DATA OUT
1/2 L:RESET IN
1/2 6.00MHZ IN
1/2 CTL MUTING OUT
1/2 T-LINE IN
1/2 T-REEL FG OUT
PD-41, 7-1 19-12 TENREG C+S (+) OUT
PD-41, 7-2 19-11 TENREG C+S (S) IN
PD-41, 7-3 19-10 TENREG C+S (-) OUT
PD-41, 7-12 19-1 T-REEL FG IN
PD-40, 8-11 21-2 S-REEL FG IN
IF-132, 2-5 2-4 L:CAPSTAN STOP OUT
SV-93, 5-1 8-12 L:CTL MUTING IN
SV-93, 5-9 8-4 L:DRUM ROTATE IN
SV-93, 5-2 8-11 L:REV/H:FWD DET IN
SV-93, 5-6 8-7 L:CAPSTAN STOP IN
PTC-33, ① 6-5 REG 5V OUT
PTC-33, ④ 6-3 THREAD END DET
PTC-33, ⑥ 6-2 UNTHREAD END DET
PTC-33, ③ 6-1 GND
SV-93, 6-7 7-6 L:SERVO LOCK IN
SV-93, 6-8 7-5 PB CTL IN
SV-93, 6-9 7-4 CAPSTAN 2FG IN
2-1 PB CTL OUT
CC-36, 1-1 13-10 CASSETTE IN IN
CC-36, 1-3 13-8 CASSETTE DOWN IN
CC-36, 1-2 13-9 L:CASSETTE CONNECTION
PTC-34, ② 12-1 L:FR UNTHREAD IN
CC-36, 1-4 13-7 REG 5V OUT
CC-36, 1-6 13-5 REG 5V OUT
CC-36, 1-7 13-4 REG 12V OUT
PTC-30, ② 14-3 REG 5V OUT
PTC-30, ③ 14-5 L:REC OK IN
SV-93, 5-12 8-1 CONDENSATION SENSOR IN (X)
SV-93, 5-11 8-2 CONDENSATION SENSOR IN (G)
KY-105, 4-7 18-4 REC OK OUT
CTL OUT 2-3 IF-132, 2-6
CTL COUNT PULSE OUT 20-5 KY-105, 3-4
REEL MOTOR 12V 22-1 PT-9, E
REEL MOTOR (B) 22-2 PT-9, B
REEL MOTOR (C) 22-3 PT-9, C
REEL MOTOR (+) OUT 19-3 PD-41, 7-10
REEL MOTOR (-) OUT 19-4 PD-41, 7-9
L:PINCH SOL ON IN 7-7 SV-93, 6-6
PINCH SOL ON OUT 21-10 PD-40, 8-3
SEARCH SOL ON OUT 21-9 PD-40, 8-4
SEARCH SPEED 0 7-1 SV-93, 6-12
SEARCH SPEED 1 7-2 SV-93, 6-11
SEARCH SPEED 2 7-3 SV-93, 6-10
SEARCH SPEED 3 8-10 SV-93, 5-3
S-IDLER SOL ON OUT 21-5 PD-40, 8-8
T-IDLER SOL ON OUT 19-6 PD-41, 7-7
S-BRAKE SOL ON OUT 21-4 PD-40, 8-9
T-BRAKE SOL ON OUT 19-5 PD41, 7-8
L:AUDIO CH-1 EE OUT 5-2 AV-82, 3-5
L:AUDIO CH-2 EE OUT 5-3 AV-82, 3-4
L:SEARCH/H:NORMAL OUT 8-9 SV-93, 5-4
L:REV COMMAND OUT 8-8 SV-93, 5-5
L:AUDIO CH-1 REC OUT 5-5 AV-82, 3-2
L:AUDIO CH-2 REC OUT 5-4 AV-82, 3-3
L:VIDEO EE OUT 10-1 RP-31, 2-3
L:VIDEO EE OUT 7-12 SV-93, 6-5
L:VIDEO EE OUT 4-1 VD-39, 2-3
L:DRUM STOP OUT 8-3 SV-93, 5-10
L:VIDEO CH-A REC OUT 10-3 RP-31, 2-1
L:SERVO REC OUT 7-8 SV-93, 6-5
L:VIDEO CH-B REC OUT 10-2 RP-31, 2-2
SKEW SOL ON OUT 21-6 PD-40, 8-7
COUNT UP/ DOWN 18-5 KY-105, 4-6
GND 13-6 CC-36, 1-5
REG GND 8-6 SV-93, 5-7
THREADING MOTOR(+) OUT 11-2 LM-13, ②
THREADING MOTOR(-) OUT 11-1 LM-13, ①
SYS GND 11-3 LM-13, ③
L:UNTHREADING OUT 1-2 IF-132, 1-11
CC MOTOR (+) OUT 13-1 CC-36, 1-10
CC MOTOR (-) OUT 13-2 CC-36, 1-9
L:AUTO OFF OUT 18-1 KY-105, 4-10
IC1 μPC4558C
IC2 μPC4558C
IC3 TC4538BP
IC4 μPC358C
IC5 μPC4558C
IC6 TC4069UBP
IC7 MB88525
IC9 M54543L
IC10 M54543L
IC11 TC4069UBP
IC17 TC4001BP
IC18 TC4069UBP
RV4:REEL MOTORSTILL
RV2:REV TORQUE
RV3:FWD TORQUE
CONTROL LOGIC
MOTOR DRIVER
(SYS GND)
REG5V
REG12V
SYS12V
TP1
TP3
TP5

注意 ：⚠印のついた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

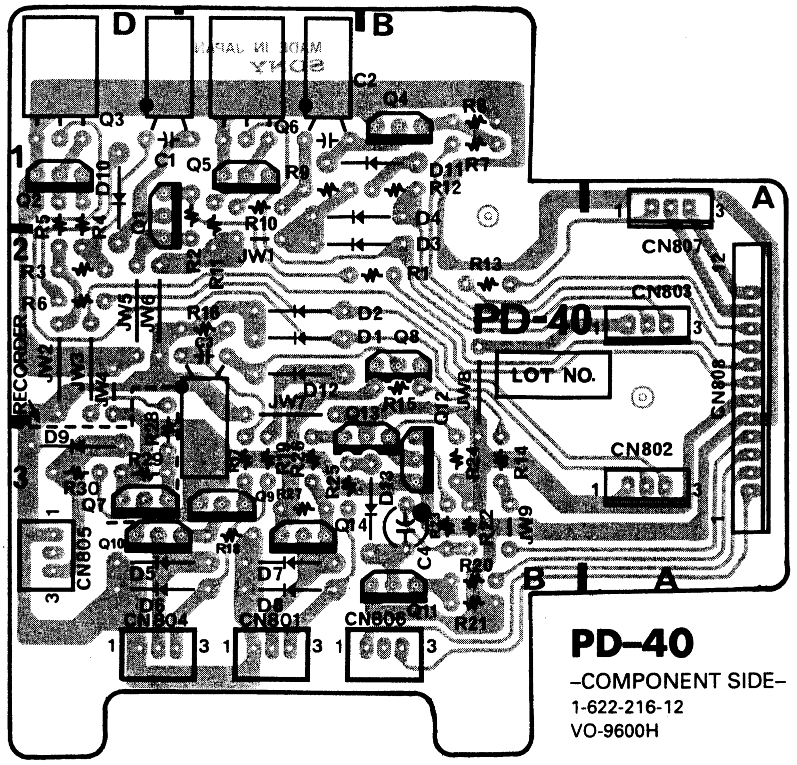
Note : The ⚠-marked components are critical to safety. Replace only with same components as specified.

SY-174(2/2)
1-641-068-11
VO-9600H

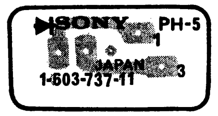
PD-40:PLUNGER SOLENOIDS
PH-5:TAPE BEGINNING/END SENSOR
PTC-35:S/T REEL ROTATION DETECTOR


SY-106. 21-11
8-2 TAPE END SENSOR (C)
SY-106. 21-12
8-1 TAPE END SENSOR (E)
SY-106. 21-7
8-6 SYS +12V IN
SY-106. 21-5
8-8 S-IDLER SOL ON IN
SY-106. 21-4
8-9 S-BRAKE SOL ON IN
SY-106. 21-8
8-5 SYS GND
SY-106. 21-2
8-11 S-REEL FG OUT
SY-106. 21-3
8-10 REG +5V IN
SY-106. 21-1
8-12 GND
SY-106. 21-6
8-7 SKEW SOL ON IN
SY-106. 21-9
8-4 SEARCH SOL ON IN
SY-106. 21-10
8-3 PINCH SOL ON IN
Q1 2SD1111
Q2 2SC2785
Q3 2SD894
Q4 2SD1111
Q5 2SC2785
Q6 2SD894
Q7 2SD998
Q8 2SD1111
Q9 2SC2785
Q10 2SD998
Q11 2SD1111
Q12 2SC2785
Q13 2SC2785
Q14 2SD998
R1 820
R2 47k
R3 68k
R4 10k
R5 10k
R6 0.8A
C1 4.7 50V
D1 10E-2
D2 10E-2
D10 10E-2
R7 820
R8 47k
R9 68k
R10 10k
R11 10k
R12 0.8A
C2 4.7 50V
D3 10E-2
D4 10E-2
D11 10E-2
R13 330
D9 10E-2
R28 820
R29 47k
R30 0.8A
PD-40 ONLY
R14 820
R15 47k
R16 68k
R17 10k
R18 10k
R19 0.8A
C3 4.7 50V
D5 10E-2
D6 10E-2
D12 10E-2
R20 820
R21 47k
R22 68k
R23 10k
R24 10k
R25 0.8A
R26 5600
R27 47k
C4 4.7 50V
D7 10E-2
D8 10E-2
D13 10E-2
TAPE END SENSOR (C) 6-1
6-2
TAPE END SENSOR (E) 6-3
S-IDLER SOL SYS12V 2-1
S-IDLER SOL STARTER 2-2
S-IDLER SOL HOLDER 2-3
S-BRAKE SOL SYS12V 3-1
S-BRAKE SOL STARTER 3-2
S-BRAKE SOL HOLDER 3-3
S-REEL FG IN 7-2
REG 5V 7-1
REG GND 7-3
SKEW SOL SYS12V 5-1
5-2
SKEW SOL STARTER 5-3
SEARCH SOL SYS12V 4-1
SEARCH SOL STARTER 4-2
SEARCH SOL HOLDER 4-3
PINCH SOL SYS12V 1-1
PINCH SOL STARTER 1-2
PINCH SOL HOLDER 1-3
NC
Q1 SPS102
PH-5
TAPE END SENSOR
PM1004
SUPPLY IDLER SOL
(12V 9.5/52Ω)
PM1005
SUPPLY BRAKE SOL
(12V 12/90Ω)
PTC-35
IC1 GP1L53
SUPPLY ROTATION DET
PM1006
SKEW
(12V 80Ω)
PM1007
SEARCH
(12V 12/90Ω)
PM1008
PINCH
(12V 7/35 Ω)

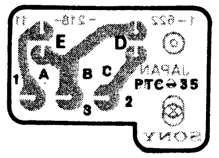
PD-40
1-622-216-12
VO-9600H


D
B
A
CN807
CN803
CN808
CN802
CN805
CN804
CN801
CN806
PD-40
LOT NO.
DECODER
Q3
Q4
Q5
Q6
Q7
Q8
Q10
Q11
Q14
C1
C2
D1
D2
D3
D4
D5
D7
D9
D10
D11
D12
R6
R7
R9
R10
R12
R13
R15
R21
R26
R30
JW1
JW7
JW8
JW9

PD-40
-COMPONENT SIDE-
1-622-216-12
VO-9600H


SONY
PH-5
JAPAN
1-603-737-11
1
3

PH-5
-COMPONENT SIDE-
1-603-737-11
VO-9600H


E
D
A
B
C
PTC-35
1
2
3

PTC-35
-COMPONENT SIDE-
1-622-218-11
VO-9600H

注意：⚠印及び▨で囲まれた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

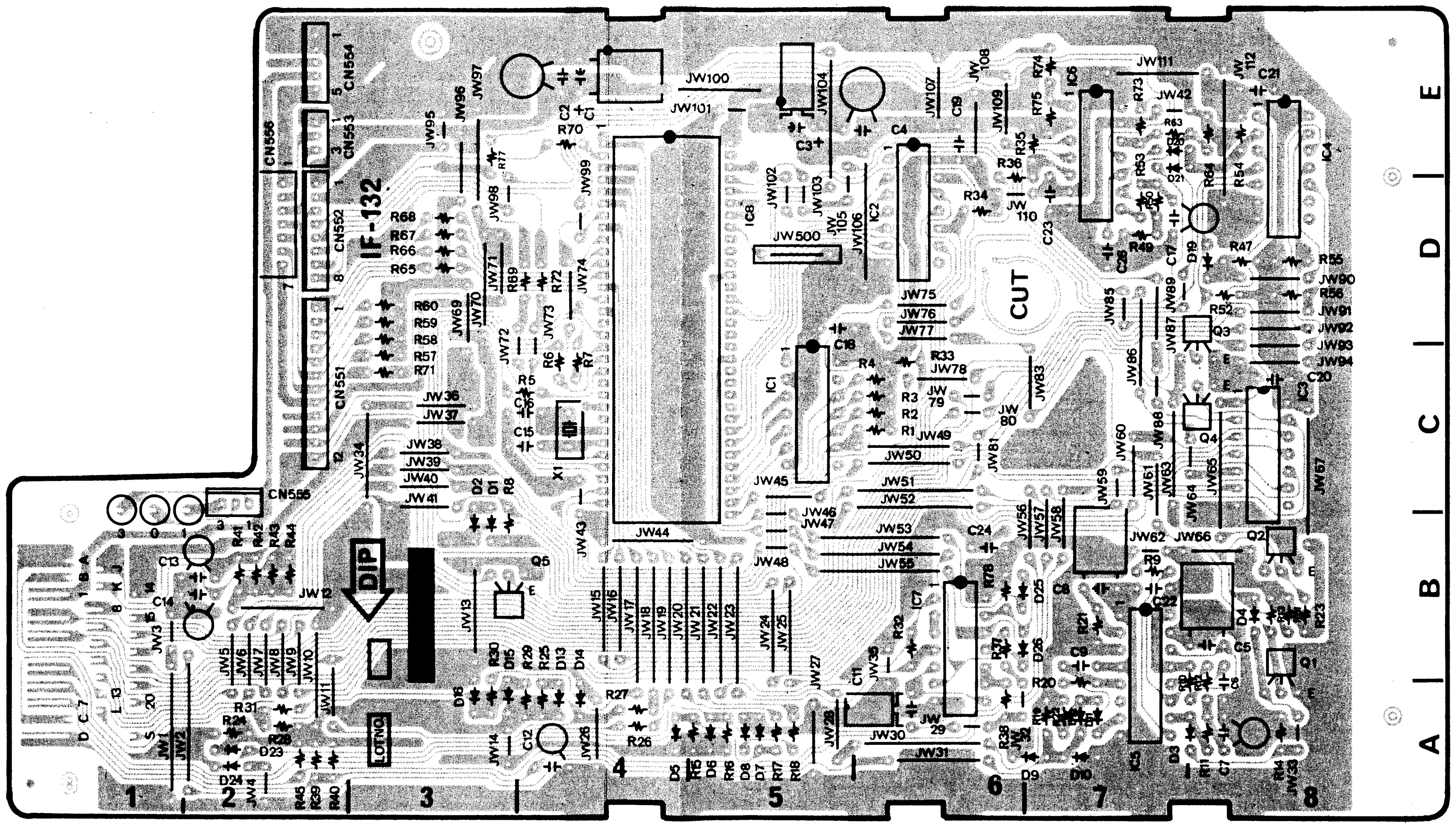
NOTE;

The shaded and ⚠-marked components are critical to safety.
Replace only with same components as specified.

IF-132:33P INTERFACE

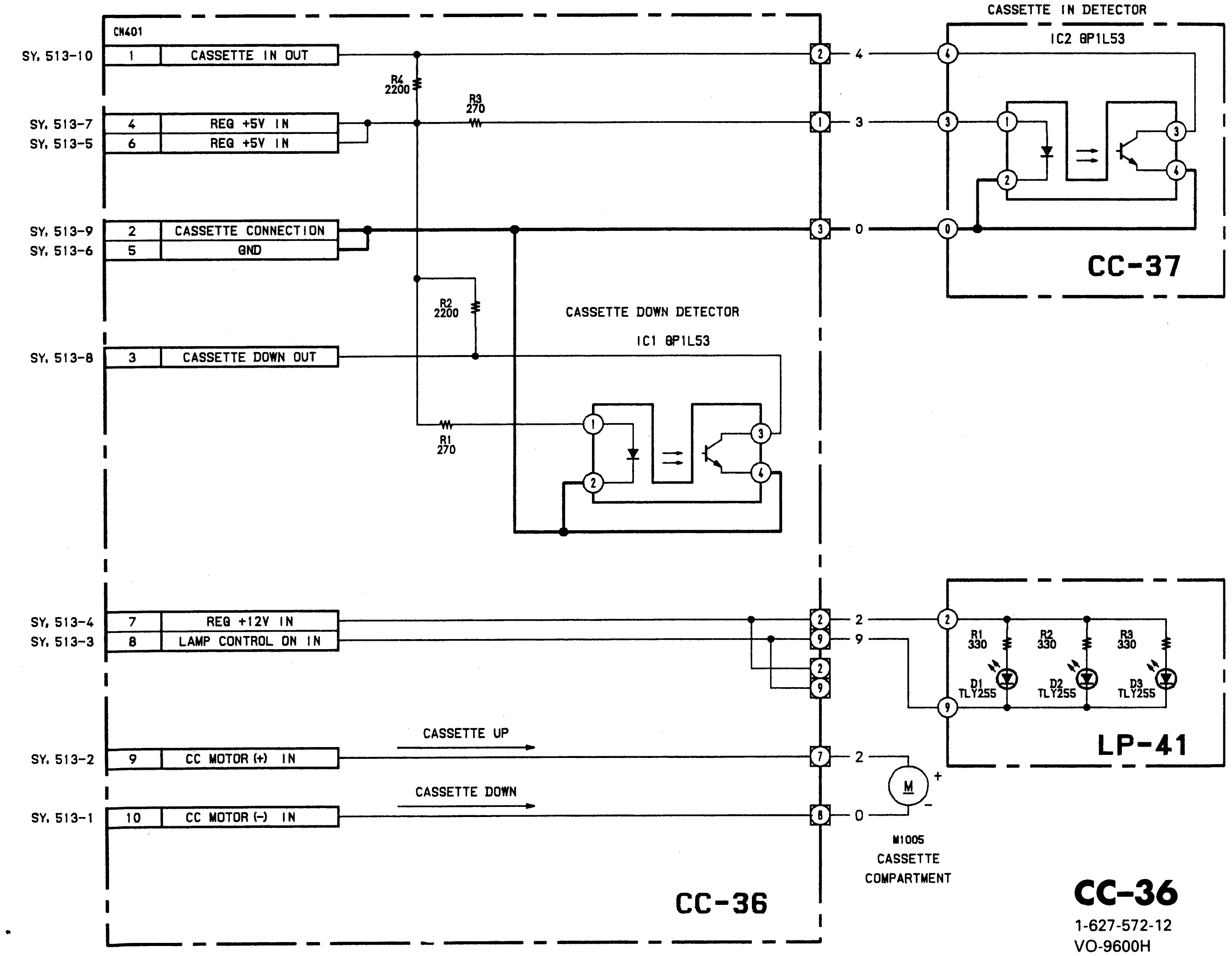
IF-132 (1-622-387-13)

CN551	C-2
CN552	D-2
CN553	E-2
CN554	E-2
CN555	C-2
CN556	D-2
D1	B-3
D2	B-3
D3	A-8
D4	B-8
D5	A-4
D6	A-5
D7	A-5
D8	A-5
D9	A-7
D10	A-7
D13	A-4
D14	A-4
D15	A-3
D16	A-3
D19	D-8
D20	E-7
D21	E-7
D23	A-2
D24	A-2
D25	B-7
D26	B-7
IC1	C-5
IC2	D-6
IC3	C-8
IC4	E-8
IC5	B-7
IC6	E-7
IC7	B-6
IC8	D-4
Q1	B-8
Q2	B-8
Q3	D-8
Q4	C-8
Q5	B-3
X1	C-4

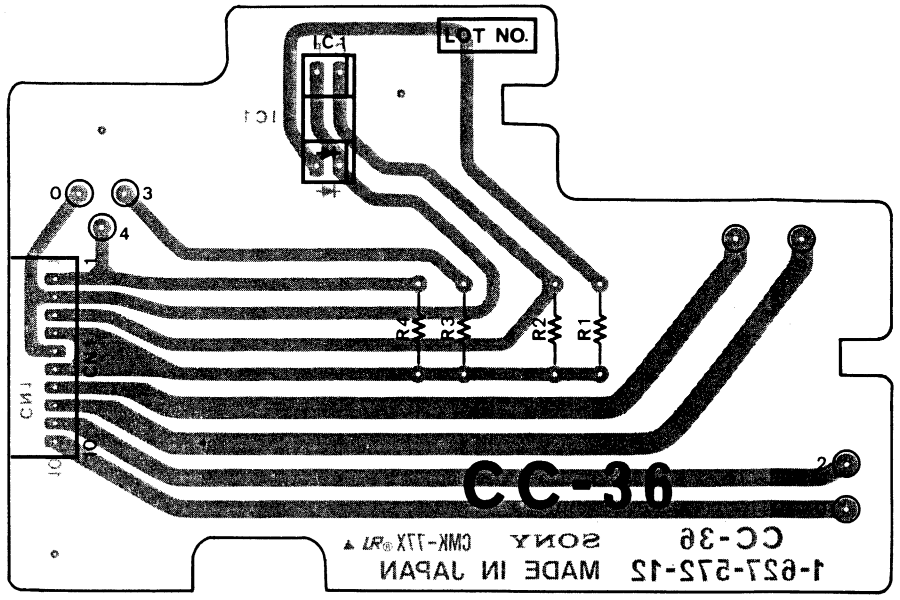

IF-132
CN554
CN553
CN556
CN552
CN551
CN555
DIP
CUT
JW44
JW500
1
2
3
4
5
6
7
8
A
B
C
D
E

IF-132
-COMPONENT SIDE-
1-622-387-13
VO-9600H

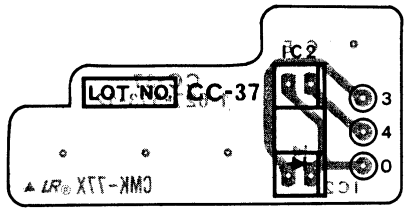
CC-36: JUNCTION BOARD FOR CC-37 AND LP-41
CC-37: CASSETTE IN DETECTOR
LP-41: CASSETTE COMPARTMENT LAMP


CN401
SY, 513-10
1
CASSETTE IN OUT
SY, 513-7
4
REG +5V IN
SY, 513-5
6
REG +5V IN
R4
2200
R3
270
SY, 513-9
2
CASSETTE CONNECTION
SY, 513-6
5
GND
R2
2200
CASSETTE DOWN DETECTOR
IC1 8P1L53
SY, 513-8
3
CASSETTE DOWN OUT
R1
270
CASSETTE IN DETECTOR
IC2 8P1L53
CC-37
SY, 513-4
7
REG +12V IN
SY, 513-3
8
LAMP CONTROL ON IN
R1
330
R2
330
R3
330
D1
TLY255
D2
TLY255
D3
TLY255
LP-41
SY, 513-2
9
CC MOTOR (+) IN
CASSETTE UP
CASSETTE DOWN
SY, 513-1
10
CC MOTOR (-) IN
M
M1005
CASSETTE
COMPARTMENT
CC-36

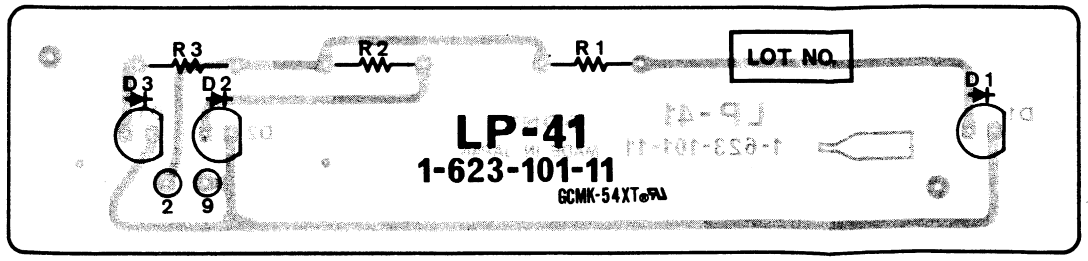
CC-36
1-627-572-12
VO-9600H


LOT NO.
IC1
R4
R3
R2
R1
CN1
CC-36
SONY
CC-36
MADE IN JAPAN
1-627-572-12

CC-36
-COMPONENT SIDE-
1-627-572-12
VO-9600H


LOT NO.
CC-37
IC2
3
4
0

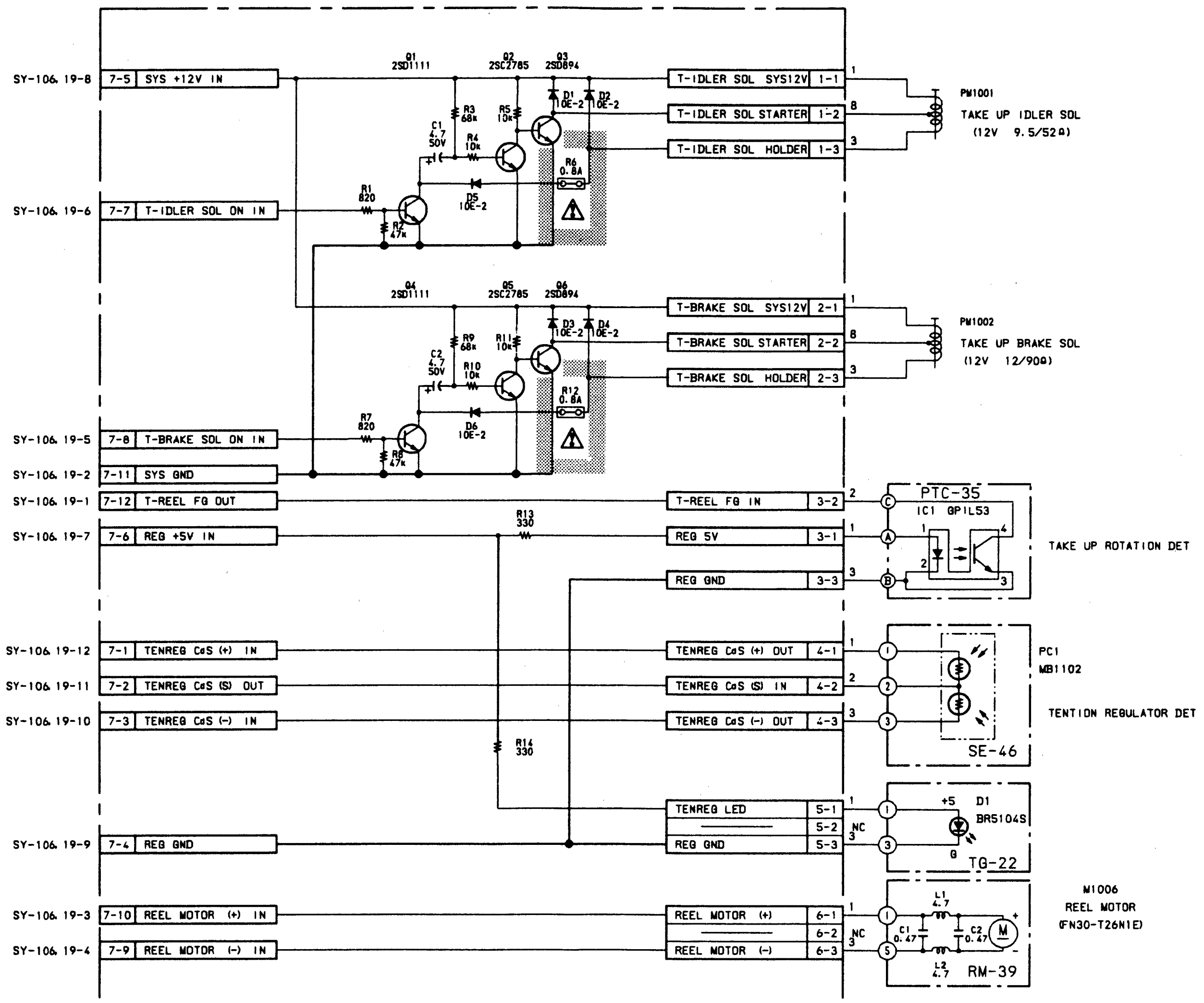
CC-37
-COMPONENT SIDE-
1-627-573-12
VO-9600H


R3
R2
R1
LOT NO.
D3
D2
D1
LP-41
1-623-101-11
2
9

LP-41
-COMPONENT SIDE-
1-627-101-11
VO-9600H

PD-41, PTC-35, RM-39, SE-46, TG-22

PD-41:PLUNGER SOLENOIDS
PTC-35:S/T REEL ROTATION DETECTOR
RM-39:REEL MOTOR
SE-46:TENSION REGULATOR DETECTOR
TG-22:TENSION REGULATOR LED


SY-106, 19-8
7-5 SYS +12V IN
SY-106, 19-6
7-7 T-IDLER SOL ON IN
SY-106, 19-5
7-8 T-BRAKE SOL ON IN
SY-106, 19-2
7-11 SYS GND
SY-106, 19-1
7-12 T-REEL FG OUT
SY-106, 19-7
7-6 REG +5V IN
SY-106, 19-12
7-1 TENREG CdS (+) IN
SY-106, 19-11
7-2 TENREG CdS (S) OUT
SY-106, 19-10
7-3 TENREG CdS (-) IN
SY-106, 19-9
7-4 REG GND
SY-106, 19-3
7-10 REEL MOTOR (+) IN
SY-106, 19-4
7-9 REEL MOTOR (-) IN
Q1 2SD1111
Q2 2SC2785
Q3 2SD894
Q4 2SD1111
Q5 2SC2785
Q6 2SD894
R1 820
R2 47k
R3 68k
R4 10k
R5 10k
C1 4.7 50V
D1 10E-2
D2 10E-2
D5 10E-2
R6 0.8A
R7 820
R8 47k
R9 68k
R10 10k
R11 10k
C2 4.7 50V
D3 10E-2
D4 10E-2
D6 10E-2
R12 0.8A
R13 330
R14 330
T-IDLER SOL SYS12V 1-1
T-IDLER SOL STARTER 1-2
T-IDLER SOL HOLDER 1-3
PM1001
TAKE UP IDLER SOL
(12V 9.5/52Ω)
T-BRAKE SOL SYS12V 2-1
T-BRAKE SOL STARTER 2-2
T-BRAKE SOL HOLDER 2-3
PM1002
TAKE UP BRAKE SOL
(12V 12/90Ω)
T-REEL FG IN 3-2
REG 5V 3-1
REG GND 3-3
PTC-35
IC1 GP1L53
TAKE UP ROTATION DET
TENREG CdS (+) OUT 4-1
TENREG CdS (S) IN 4-2
TENREG CdS (-) OUT 4-3
PC1
MB1102
TENTION REGULATOR DET
SE-46
TENREG LED 5-1
5-2
REG GND 5-3
NC
+5
D1
BR5104S
G
TG-22
REEL MOTOR (+) 6-1
6-2
REEL MOTOR (-) 6-3
L1 4.7
L2 4.7
C1 0.47
C2 0.47
M
RM-39
M1006
REEL MOTOR
(FN30-T26N1E)

PD-41
1-622-217-12
VO-9600H

注意：⚠印及び░░で囲まれた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

NOTE;

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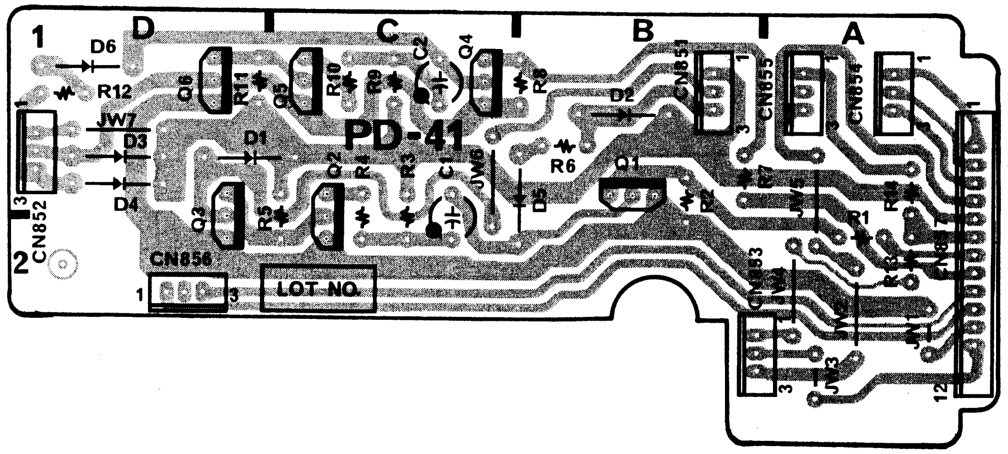
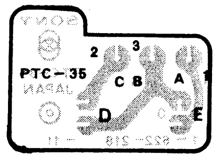
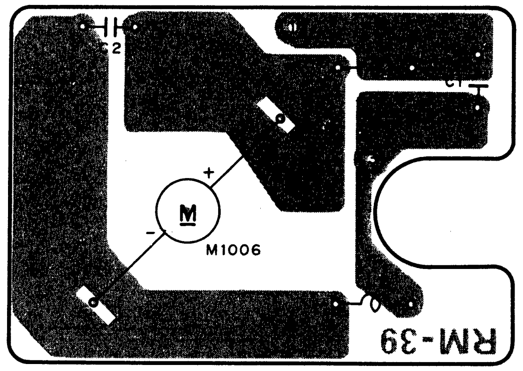
Replace only with same components as specified.


1
2
3
12
A
B
C
D
PD-41
D1
D2
D3
D4
D5
D6
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
Q1
Q2
Q3
Q4
Q5
Q6
C1
C2
JW1
JW2
JW3
JW4
JW5
JW6
JW7
CN851
CN852
CN853
CN854
CN855
CN856
CN857
LOT NO.

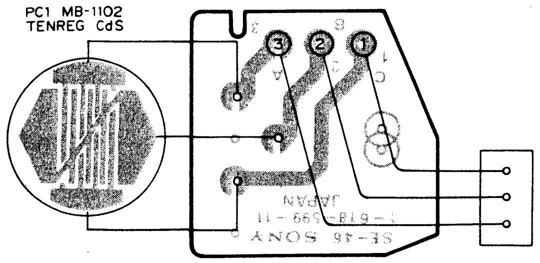
PD-41
-COMPONENT SIDE-
1-622-217-12
VO-9600H


SONY
PTC-35
JAPAN
1
2
3
A
B
C
D
E

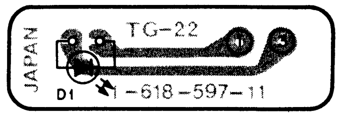
PTC-35
-COMPONENT SIDE-
1-622-218-11
VO-9600H


C2
C1
M
M1006
+
-
RM-39

RM-39
-COMPONENT SIDE-
1-618-873-11
VO-9600H

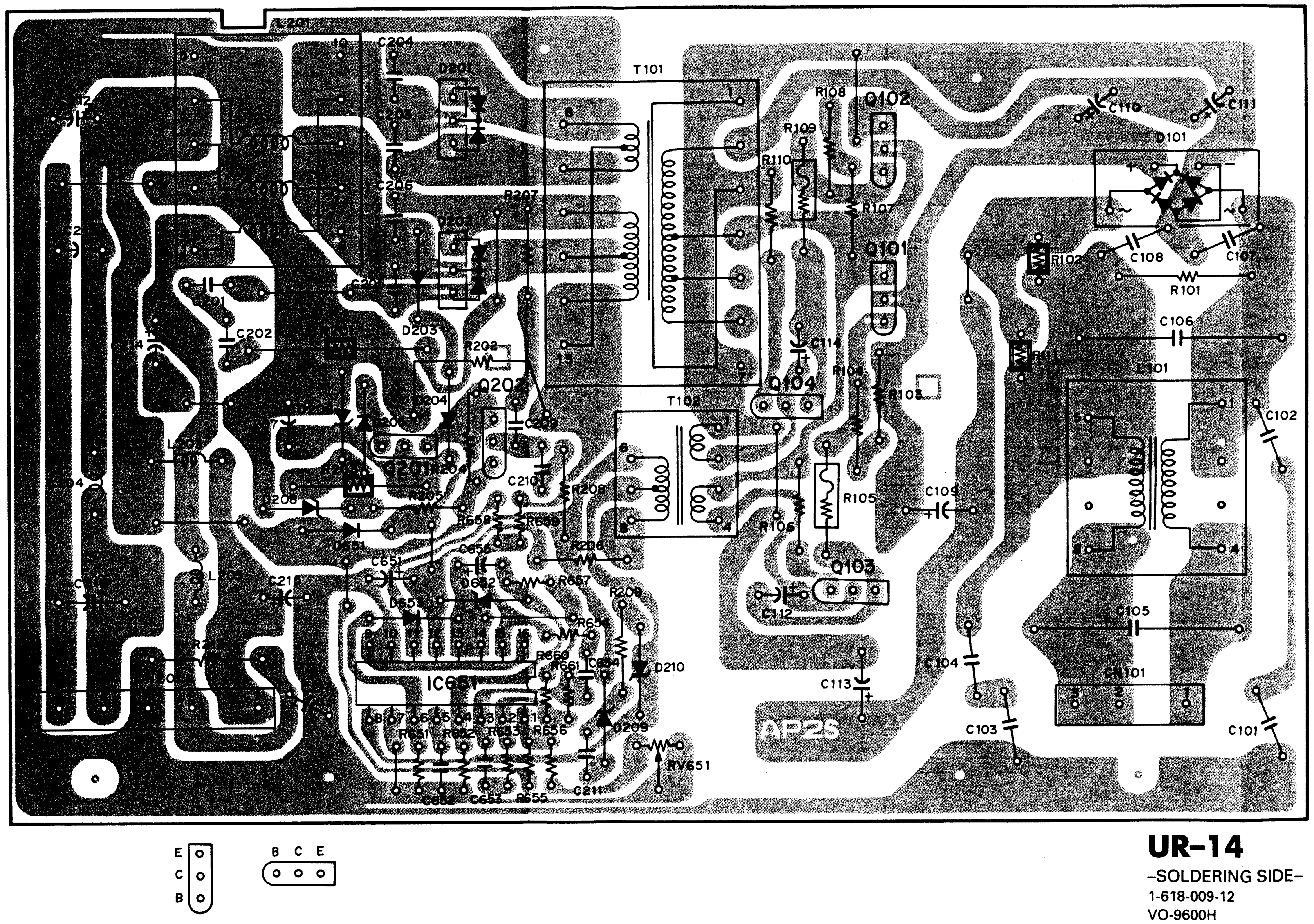

PC1 MB-1102
TENREG CdS
1
2
3
SONY
JAPAN

SE-46
-SOLDERING SIDE-
1-618-599-11
VO-9600H


TG-22
JAPAN
D1
1-618-597-11

TG-22
-SOLDERING SIDE-
1-618-597-11
VO-9600H

UR-14: SWITCHING REGULATOR (FOR J/UC)


L201
C204
D201
C203
C205
C206
R207
D202
C207
C201
C202
D203
R202
C214
D204
Q202
C209
Q201
L203
C204
D208
D651
C210
R208
R206
R658
R659
C655
C651
C652
R657
D652
L202
C213
C212
R209
R654
R660
R661
C654
D210
IC651
R651
R652
R653
R656
D209
RV651
C211
C652
C653
R655
T101
T102
R108
Q102
R109
R110
R107
Q101
C114
Q104
R104
R103
R106
R105
Q103
C112
C113
C109
C104
C103
AP2S
C110
C111
D101
C108
C107
R102
R101
C106
R111
L101
C102
C105
CN101
C101
E
C
B
B C E

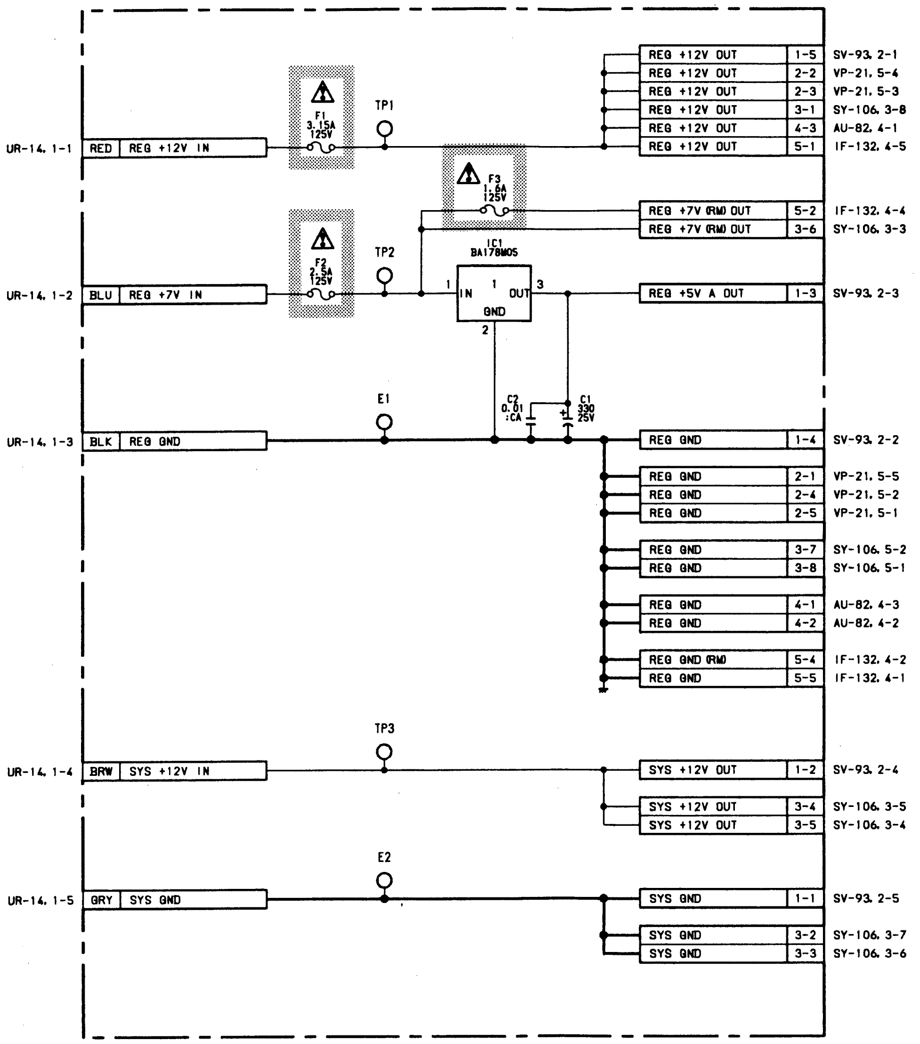
UR-14

–SOLDERING SIDE–

1-618-009-12

VO-9600H

DC-31/A:DC SUPPLY


UR-14, 1-1
RED
REG +12V IN
UR-14, 1-2
BLU
REG +7V IN
UR-14, 1-3
BLK
REG GND
UR-14, 1-4
BRW
SYS +12V IN
UR-14, 1-5
GRY
SYS GND
F1 3.15A 125V
F2 2.5A 125V
F3 1.6A 125V
TP1
TP2
TP3
E1
E2
IC1 BA178M05
IN
OUT
GND
1
2
3
C2 0.01 :CA
C1 330 25V
REG +12V OUT 1-5 SV-93, 2-1
REG +12V OUT 2-2 VP-21, 5-4
REG +12V OUT 2-3 VP-21, 5-3
REG +12V OUT 3-1 SY-106, 3-8
REG +12V OUT 4-3 AU-82, 4-1
REG +12V OUT 5-1 IF-132, 4-5
REG +7V (RM) OUT 5-2 IF-132, 4-4
REG +7V (RM) OUT 3-6 SY-106, 3-3
REG +5V A OUT 1-3 SV-93, 2-3
REG GND 1-4 SV-93, 2-2
REG GND 2-1 VP-21, 5-5
REG GND 2-4 VP-21, 5-2
REG GND 2-5 VP-21, 5-1
REG GND 3-7 SY-106, 5-2
REG GND 3-8 SY-106, 5-1
REG GND 4-1 AU-82, 4-3
REG GND 4-2 AU-82, 4-2
REG GND (RM) 5-4 IF-132, 4-2
REG GND 5-5 IF-132, 4-1
SYS +12V OUT 1-2 SV-93, 2-4
SYS +12V OUT 3-4 SY-106, 3-5
SYS +12V OUT 3-5 SY-106, 3-4
SYS GND 1-1 SV-93, 2-5
SYS GND 3-2 SY-107, 3-7
SYS GND 3-3 SY-106, 3-6

DC-31/A

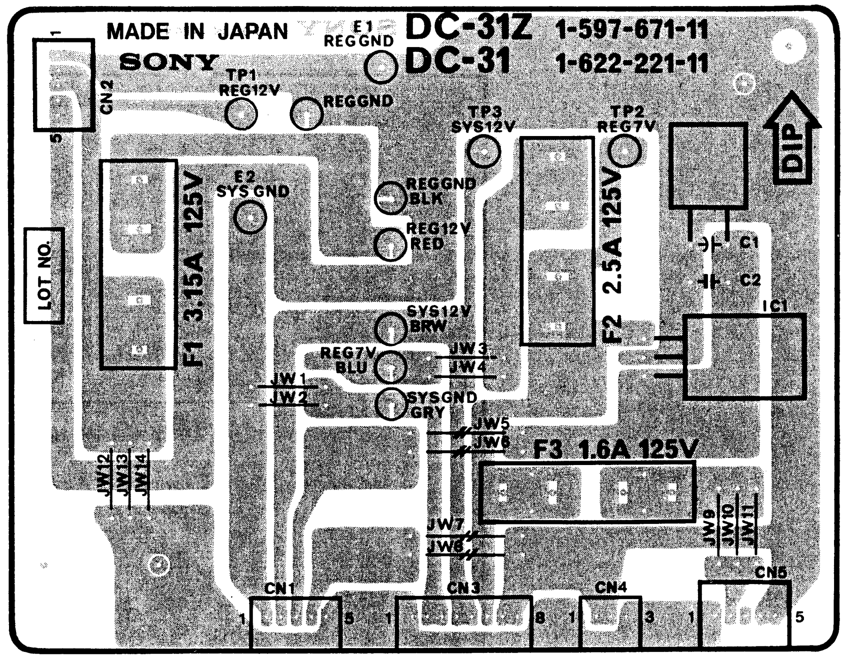
1-622-221-11, 12
VO-9600H

注意；⚠印及び▨で囲まれた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

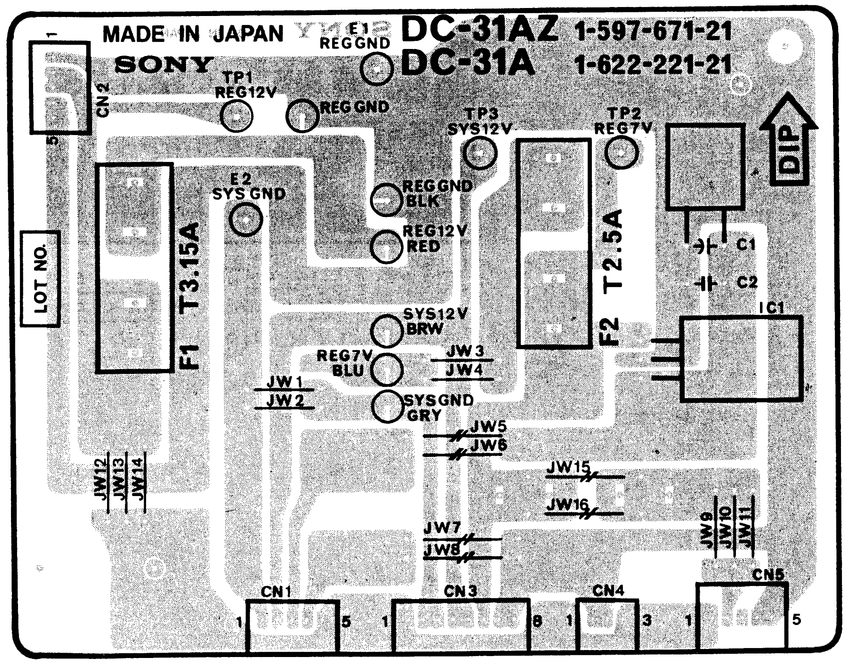
NOTE;

The shaded and ⚠-marked components are critical to safety.
Replace only with same components as specified.

DC-31: DC SUPPLY(FOR J/UC)
DC-31A: DC SUPPLY(FOR EK)

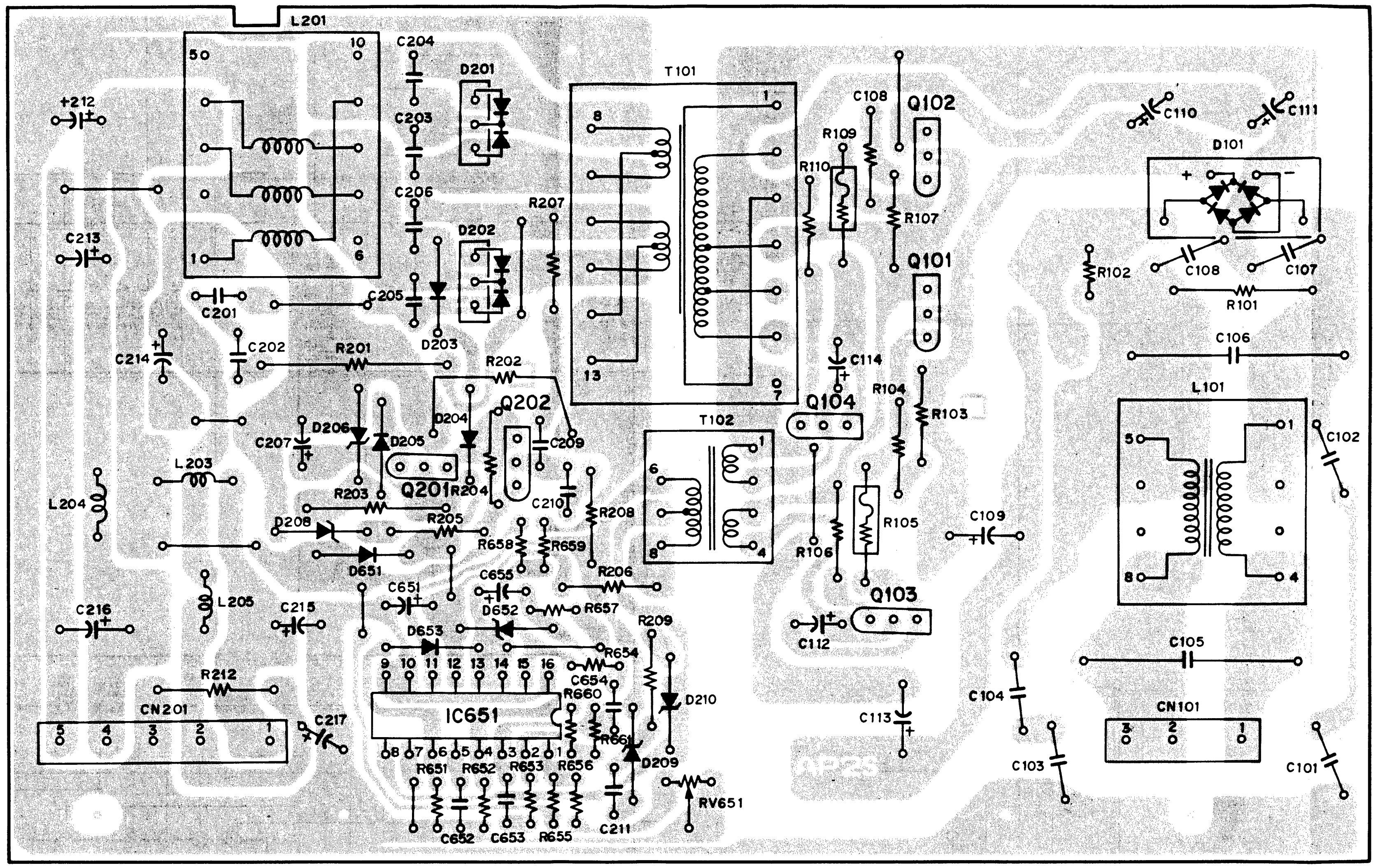

MADE IN JAPAN
SONY
DC-31Z 1-597-671-11
DC-31 1-622-221-11
E1 REG GND
TP1 REG12V
REGGND
TP3 SYS12V
TP2 REG7V
DIP
E2 SYS GND
REGGND BLK
REG12V RED
SYS12V BRW
REG7V BLU
SYSGND GRY
F1 3.15A 125V
F2 2.5A 125V
F3 1.6A 125V
LOT NO.
CN2
C1
C2
IC1
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
JW10
JW11
JW12
JW13
JW14
CN1
CN3
CN4
CN5
1
5
8
3

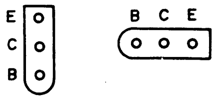
DC-31
–COMPONENT SIDE–
1-622-221-11
VO-9600H


MADE IN JAPAN
SONY
DC-31AZ 1-597-671-21
DC-31A 1-622-221-21
E1 REG GND
TP1 REG12V
REG GND
TP3 SYS12V
TP2 REG7V
DIP
E2 SYS GND
REGGND BLK
REG12V RED
SYS12V BRW
REG7V BLU
SYSGND GRY
F1 T3.15A
F2 T2.5A
LOT NO.
CN2
C1
C2
IC1
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
JW10
JW11
JW12
JW13
JW14
JW15
JW16
CN1
CN3
CN4
CN5
1
5
8
3

DC-31A
–COMPONENT SIDE–
1-622-221-21
VO-9600H

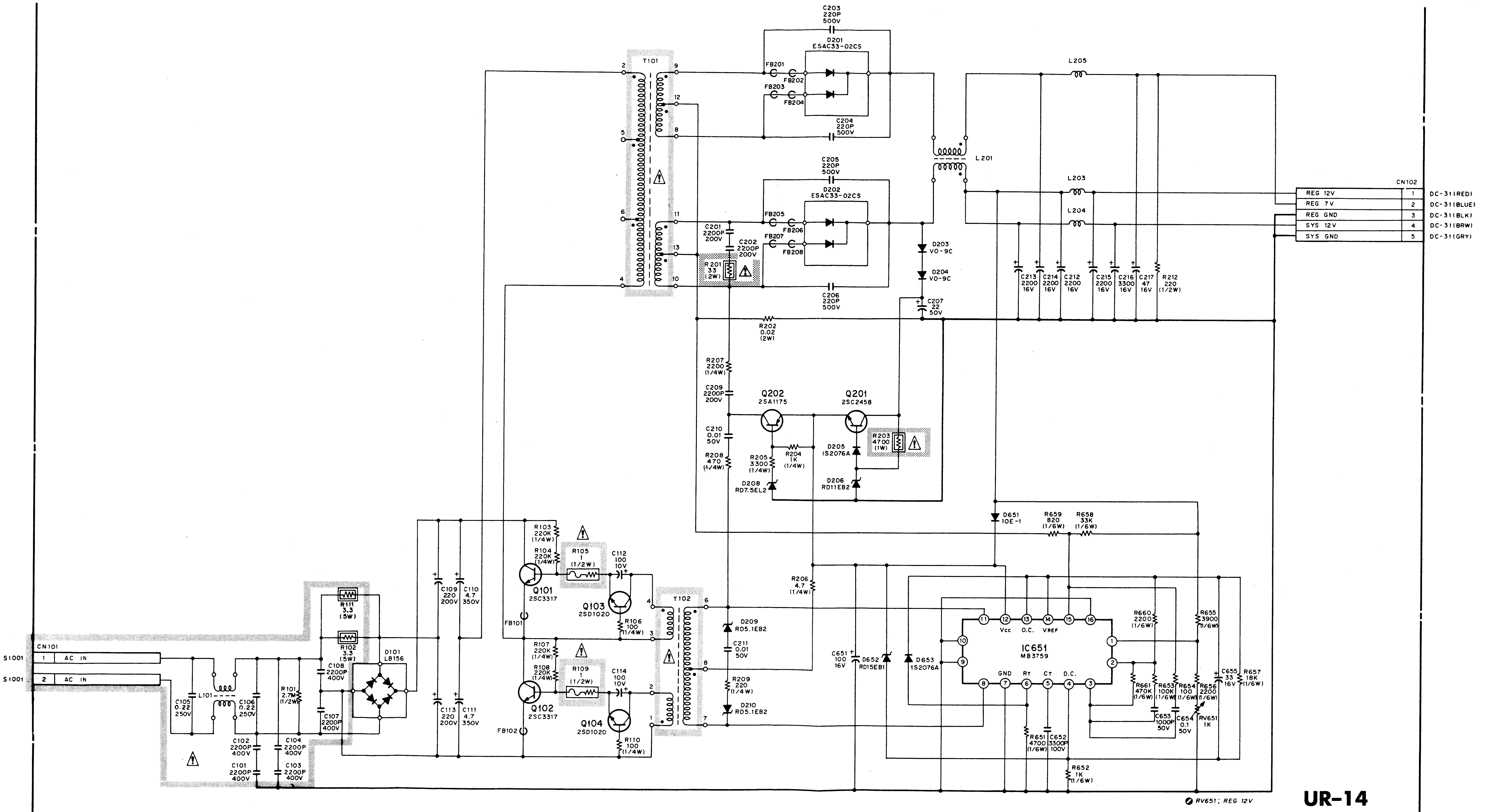
UR-14E:SWITCHING REGULATOR (FOR EK)


L201
T101
T102
L101
D101
D201
D202
D203
D204
D205
D206
D208
D209
D210
D651
D652
D653
Q101
Q102
Q103
Q104
Q201
Q202
IC651
CN101
CN201
L203
L204
L205
RV651
C101
C102
C103
C104
C105
C106
C107
C108
C109
C110
C111
C112
C113
C114
C201
C202
C203
C204
C205
C206
C207
C209
C210
C211
C212
C213
C214
C215
C216
C217
C651
C652
C653
C654
C655
R101
R102
R103
R104
R105
R106
R107
R109
R110
R201
R202
R203
R204
R205
R206
R207
R208
R209
R212
R651
R652
R653
R654
R655
R656
R657
R658
R659
R660
R661



UR-14E
-SOLDERING SIDE-
1-413-249-12
VO-9600H

UR-14: SWITCHING REGULATOR (FOR J/UC)


T101
C203 220P 500V
D201 ESAC33-02CS
FB201
FB202
FB203
FB204
C204 220P 500V
C205 220P 500V
D202 ESAC33-02CS
FB205
FB206
FB207
FB208
C201 2200P 200V
C202 2200P 200V
R201 33 (2W)
C206 220P 500V
L205
L201
L203
L204
D203 VO-9C
D204 VO-9C
C207 22 50V
C213 2200 16V
C214 2200 16V
C212 2200 16V
C215 2200 16V
C216 3300 16V
C217 47 16V
R212 220 (1/2W)
CN102
REG 12V
REG 7V
REG GND
SYS 12V
SYS GND
DC-31(RED)
DC-31(BLUE)
DC-31(BLK)
DC-31(BRW)
DC-31(GRY)
R202 0.02 (2W)
R207 2200 (1/4W)
C209 2200P 200V
Q202 2SA1175
Q201 2SC2458
C210 0.01 50V
R208 470 (1/4W)
R205 3300 (1/4W)
R204 1K (1/4W)
D205 1S2076A
R203 4700 (1W)
D206 RD11EB2
D208 RD7.5EL2
D651 10E-1
R659 820 (1/6W)
R658 33K (1/6W)
R103 220K (1/4W)
R104 220K (1/4W)
R105 1 (1/2W)
C112 100 10V
Q101 2SC3317
Q103 2SD1020
FB101
R106 100 (1/4W)
T102
R107 220K (1/4W)
R108 220K (1/4W)
R109 1 (1/2W)
C114 100 10V
Q102 2SC3317
Q104 2SD1020
FB102
R110 100 (1/4W)
C109 220 200V
C110 4.7 350V
C113 220 200V
C111 4.7 350V
R111 3.3 (5W)
R102 3.3 (5W)
D101 LB156
C108 2200P 400V
C107 2200P 400V
R101 2.7M (1/2W)
CN101
AC IN
S1001
L101
C105 0.22 250V
C106 0.22 250V
C102 2200P 400V
C104 2200P 400V
C101 2200P 400V
C103 2200P 400V
R206 4.7 (1/4W)
D209 RD5.1EB2
C211 0.01 50V
R209 220 (1/4W)
D210 RD5.1EB2
C651 100 16V
D652 RD15EB1
D653 1S2076A
IC651 MB3759
Vcc O.C. VREF
GND RT CT D.C.
R660 2200 (1/6W)
R655 3900 (1/6W)
R661 470K (1/6W)
R653 100K (1/6W)
R654 100 (1/6W)
R656 2200 (1/6W)
C655 33 16V
R657 18K (1/6W)
C653 1000P 50V
C654 0.1 50V
RV651 1K
R651 4700 (1/6W)
C652 3300P 100V
R652 1K (1/6W)
RV651; REG 12V

UR-14

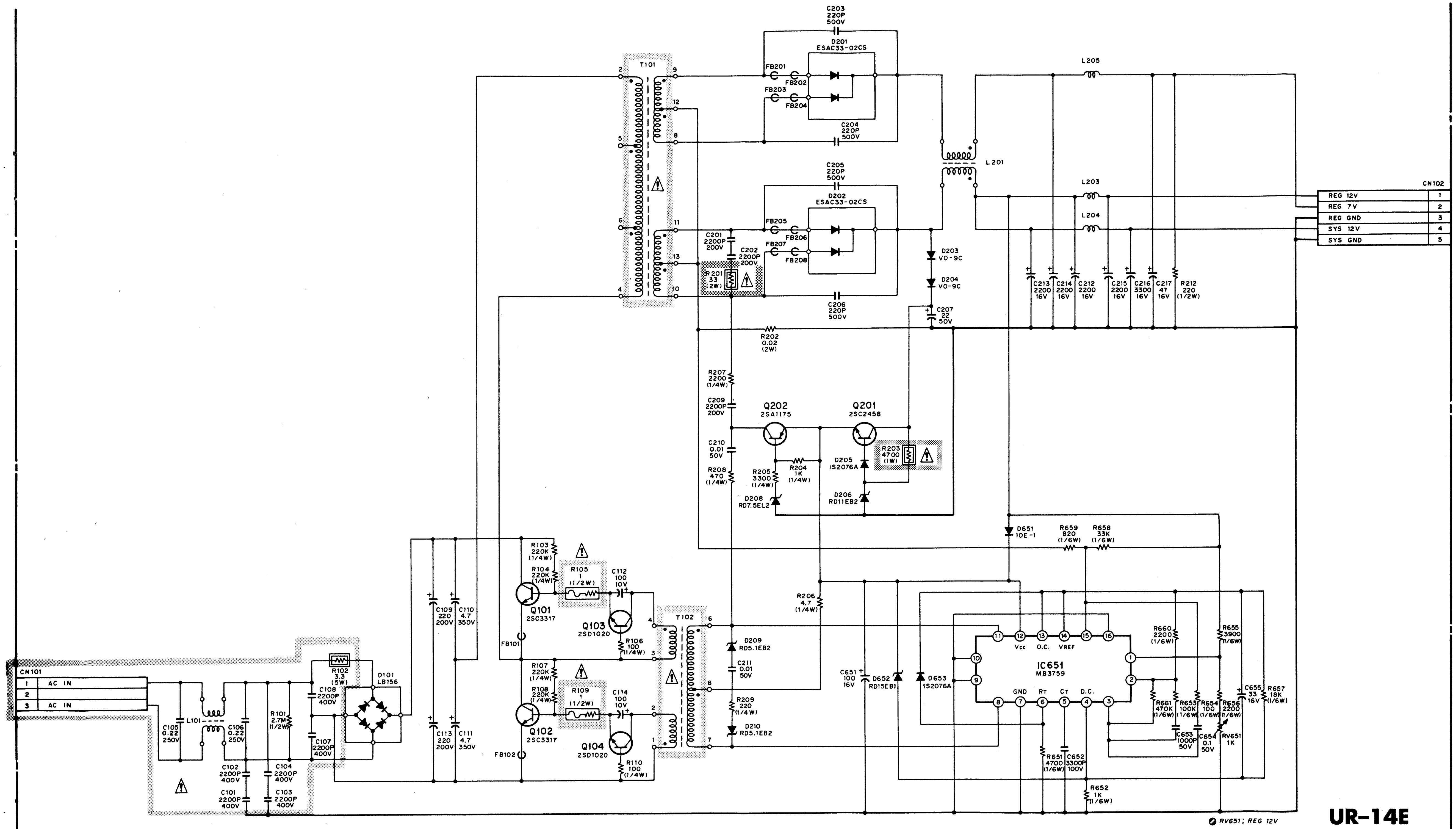
1-618-009-12
VO-9600H

注意：⚠印及び▨で囲まれた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

NOTE;

The shaded and ⚠-marked components are critical to safety.
Replace only with same components as specified.

14E:SWITCHING REGULATOR (FOR EK)


T101
C203 220P 500V
D201 ESAC33-02CS
FB201
FB202
FB203
FB204
C204 220P 500V
L205
L201
C205 220P 500V
D202 ESAC33-02CS
FB205
FB206
FB207
FB208
C201 2200P 200V
C202 2200P 200V
R201 3.3 (2W)
C206 220P 500V
D203 VO-9C
D204 VO-9C
C207 22 50V
L203
L204
C213 2200 16V
C214 2200 16V
C212 2200 16V
C215 2200 16V
C216 3300 16V
C217 47 16V
R212 220 (1/2W)
CN102
REG 12V
REG 7V
REG GND
SYS 12V
SYS GND
R202 0.02 (2W)
R207 2200 (1/4W)
C209 2200P 200V
C210 0.01 50V
R208 470 (1/4W)
Q202 2SA1175
Q201 2SC2458
R203 4700 (1W)
R205 3300 (1/4W)
R204 1K (1/4W)
D205 1S2076A
D206 RD11EB2
D208 RD7.5EL2
D651 10E-1
R659 820 (1/6W)
R658 33K (1/6W)
R103 220K (1/4W)
R104 220K (1/4W)
R105 1 (1/2W)
C112 100 10V
Q101 2SC3317
Q103 2SD1020
R106 100 (1/4W)
FB101
C109 220 200V
C110 4.7 350V
T102
R206 4.7 (1/4W)
D209 RD5.1EB2
C211 0.01 50V
R209 220 (1/4W)
D210 RD5.1EB2
C651 100 16V
D652 RD15EB1
D653 1S2076A
IC651 MB3759
Vcc
O.C.
VREF
GND
RT
CT
D.C.
R660 2200 (1/6W)
R655 3900 (1/6W)
C655 33 16V
R657 18K (1/6W)
R661 470K (1/6W)
R653 100K (1/6W)
R654 100 (1/6W)
R656 2200 (1/6W)
C653 1000P 50V
C654 0.1 50V
RV651 1K
R651 4700 (1/6W)
C652 3300P 100V
R652 1K (1/6W)
CN101
AC IN
AC IN
C105 0.22 250V
L101
C106 0.22 250V
R101 2.7M (1/2W)
R102 3.3 (5W)
C108 2200P 400V
C107 2200P 400V
D101 LB156
C102 2200P 400V
C104 2200P 400V
C101 2200P 400V
C103 2200P 400V
R107 220K (1/4W)
R108 220K (1/4W)
R109 1 (1/2W)
C114 100 10V
Q102 2SC3317
Q104 2SD1020
R110 100 (1/4W)
FB102
C113 220 200V
C111 4.7 350V
RV651; REG 12V

UR-14E

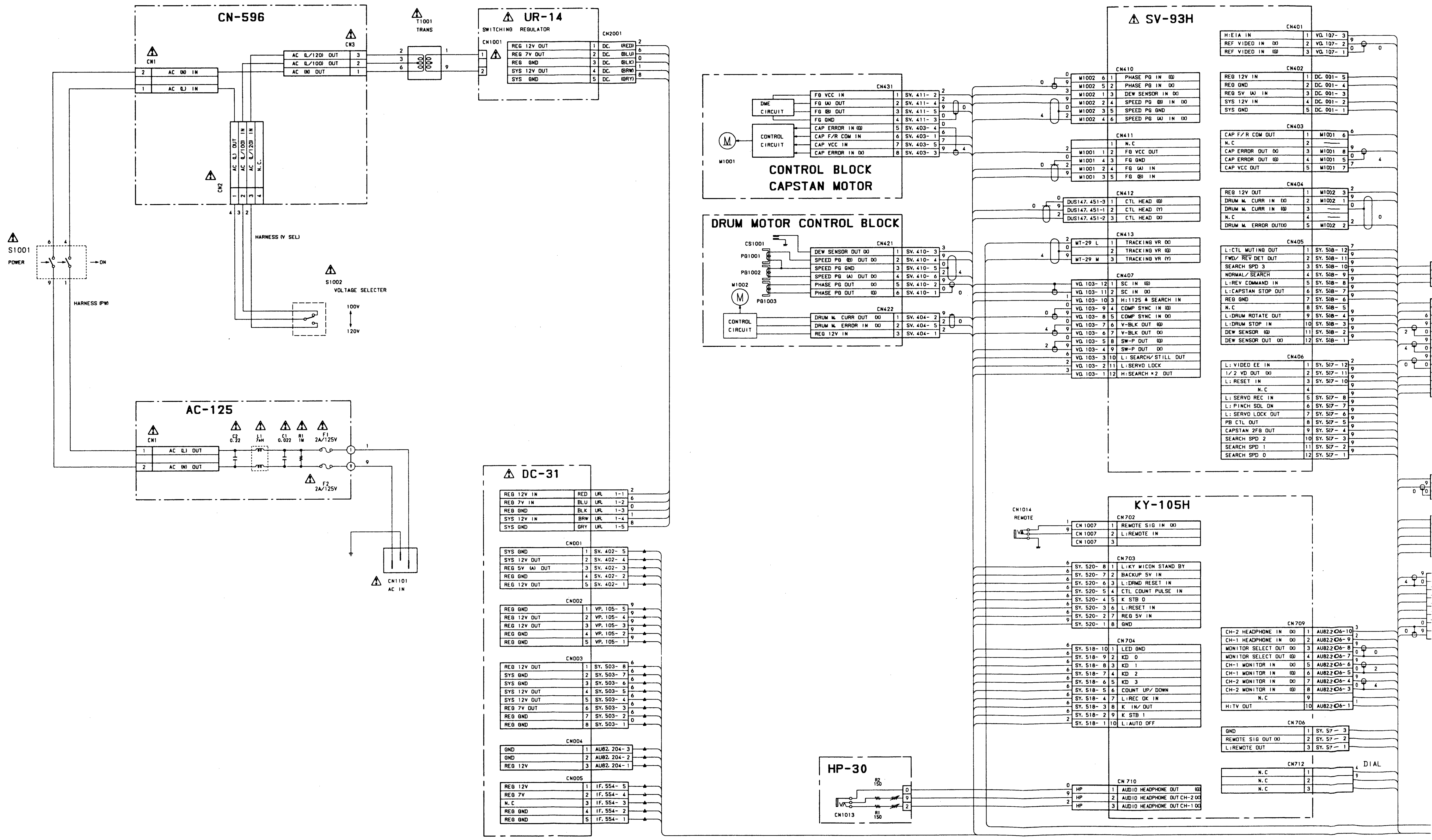
1-413-249-12
VO-9600H

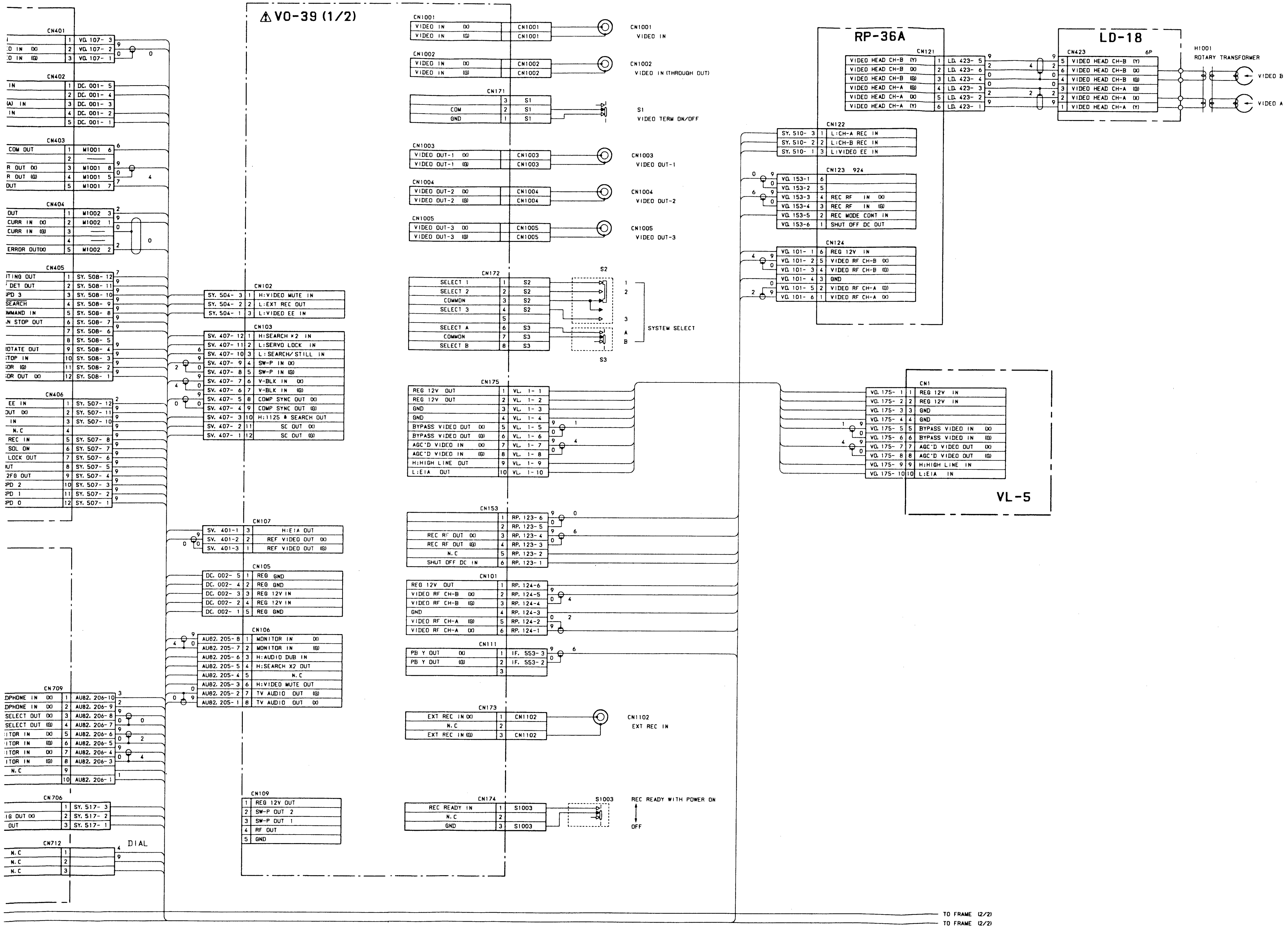
注意：⚠印及び▨で囲まれた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

NOTE;

The shaded and ⚠-marked components are critical to safety.
Replace only with same components as specified.

FRAME(1/2) (FOR J/UC)


CN-596
CN1
AC (H) IN
AC (L) IN
CN3
AC (L/120) OUT
AC (L/100) OUT
AC (H) OUT
CN2
T1001
TRANS
UR-14
SWITCHING REGULATOR
CN1001
CN2001
REG 12V OUT
REG 7V OUT
REG GND
SYS 12V OUT
SYS GND
S1001
POWER
ON
HARNESS (PW)
HARNESS (V SEL)
S1002
VOLTAGE SELECTER
100V
120V
AC-125
CN1
AC (L) OUT
AC (H) OUT
F1
2A/125V
F2
2A/125V
CN1101
AC IN
DC-31
CN001
CN002
CN003
CN004
CN005
CONTROL BLOCK
CAPSTAN MOTOR
CN431
DME CIRCUIT
CONTROL CIRCUIT
M1001
DRUM MOTOR CONTROL BLOCK
CS1001
PG1001
PG1002
PG1003
M1002
CN421
CN422
HP-30
CN1013
SV-93H
CN401
CN402
CN403
CN404
CN405
CN406
CN407
CN410
CN411
CN412
CN413
KY-105H
CN1014
REMOTE
CN702
CN703
CN704
CN706
CN709
CN710
CN712
DIAL


VO-39 (1/2)
RP-36A
LD-18
VL-5
CN401
CN402
CN403
CN404
CN405
CN406
CN709
CN706
CN712
DIAL
CN102
CN103
CN107
CN105
CN106
CN109
CN1001
CN1002
CN171
CN1003
CN1004
CN1005
CN172
CN175
CN153
CN101
CN111
CN173
CN174
CN121
CN122
CN123
CN124
CN423
CN1
H1001
ROTARY TRANSFORMER
VIDEO B
VIDEO A
CN1001 VIDEO IN
CN1002 VIDEO IN (THROUGH OUT)
S1 VIDEO TERM ON/OFF
CN1003 VIDEO OUT-1
CN1004 VIDEO OUT-2
CN1005 VIDEO OUT-3
S2
S3
SYSTEM SELECT
CN1102 EXT REC IN
S1003
REC READY WITH POWER ON
OFF
TO FRAME (2/2)
TO FRAME (2/2)

注意 ：⚠印のついた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

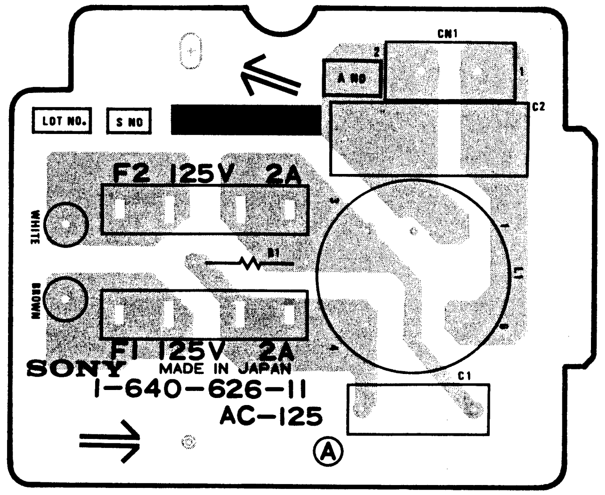
Note : The ⚠-marked components are critical to safety.
Replace only with same components as specified.

FRAME(1/2)

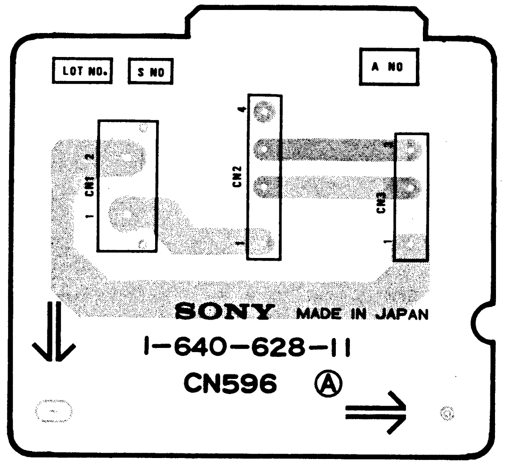
VO-9600H

5: AC INPUT(FOR J/UC)
: HEADPHONE

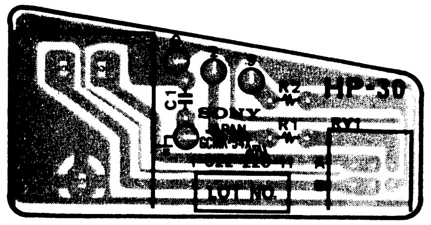
CN-596: VOLTAGE SELECTOR


CN1
A NO
LOT NO.
S NO
C2
F2 125V 2A
WHITE
BROWN
R1
L1
F1 125V 2A
SONY MADE IN JAPAN
1-640-626-11
AC-125
Ⓐ
C1

AC-125
-COMPONENT SIDE-
1-640-626-11
VO-9600H

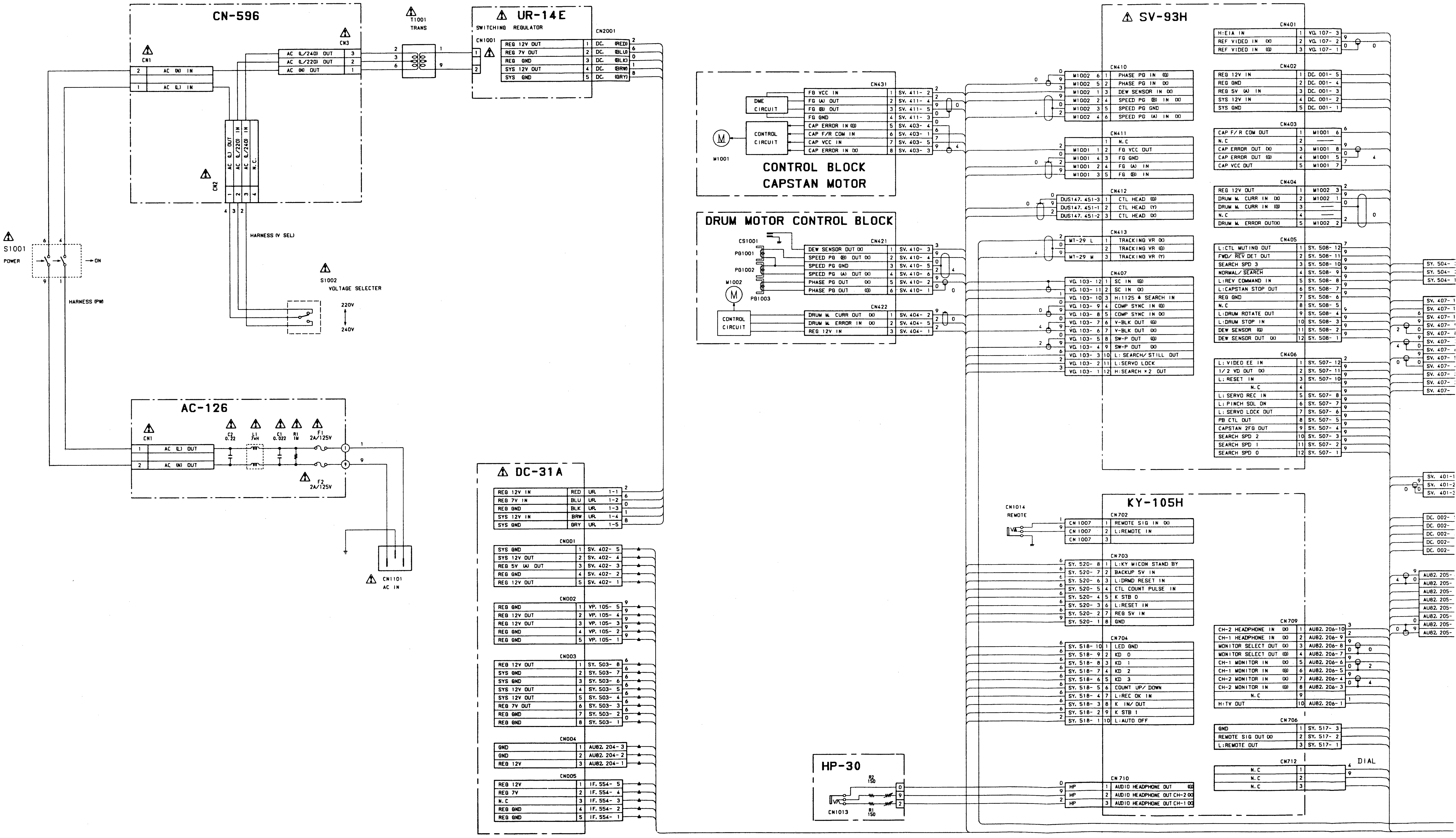

LOT NO.
S NO
A NO
CN1
CN2
CN3
SONY MADE IN JAPAN
1-640-628-11
CN596 Ⓐ

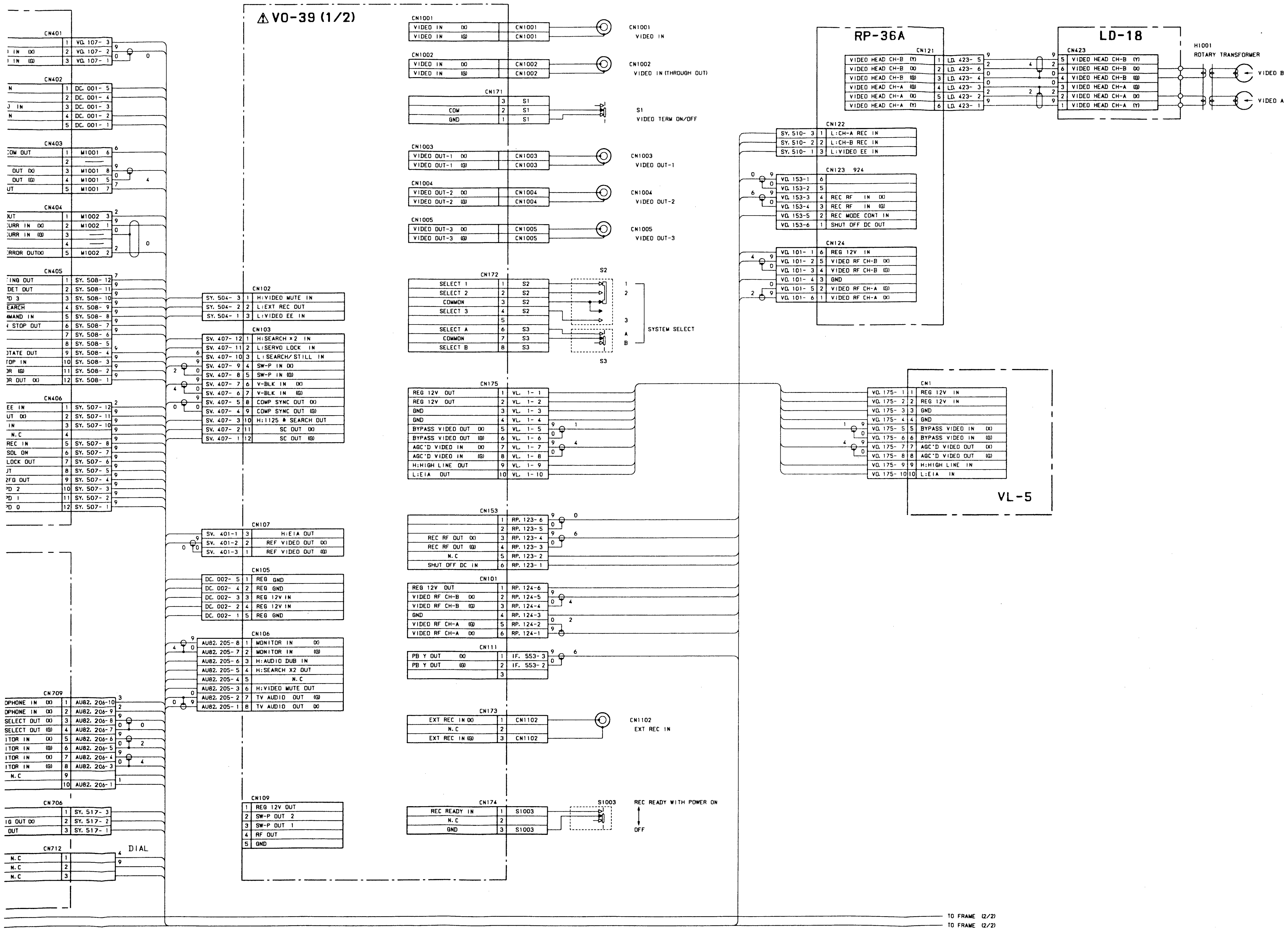
CN-596
-COMPONENT SIDE-
1-640-628-11
VO-9600H


HP-30
SONY
C1
R1
R2
LOT NO

HP-30
-COMPONENT SIDE-
1-622-220-11
VO-9600H

FRAME(1/2) (FOR EK)

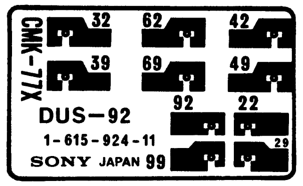

CN-596
UR-14E
SWITCHING REGULATOR
T1001 TRANS
S1001 POWER
S1002 VOLTAGE SELECTER
220V
240V
HARNESS (V SEL)
HARNESS (PW)
AC-126
CN1101 AC IN
DC-31A
CONTROL BLOCK
CAPSTAN MOTOR
DRUM MOTOR CONTROL BLOCK
SV-93H
KY-105H
HP-30
CN1014 REMOTE
CN1013
DIAL


⚠VO-39 (1/2)
RP-36A
LD-18
VL-5
H1001
ROTARY TRANSFORMER
VIDEO B
VIDEO A
CN401
CN402
CN403
CN404
CN405
CN406
CN709
CN706
CN712
DIAL
CN102
CN103
CN107
CN105
CN106
CN109
CN1001
VIDEO IN
CN1002
VIDEO IN (THROUGH OUT)
CN171
S1
VIDEO TERM ON/OFF
CN1003
VIDEO OUT-1
CN1004
VIDEO OUT-2
CN1005
VIDEO OUT-3
CN172
S2
S3
SYSTEM SELECT
CN175
CN153
CN101
CN111
CN173
CN1102
EXT REC IN
CN174
S1003
REC READY WITH POWER ON
OFF
CN121
CN122
CN123
CN124
CN423
CN1
TO FRAME (2/2)
TO FRAME (2/2)

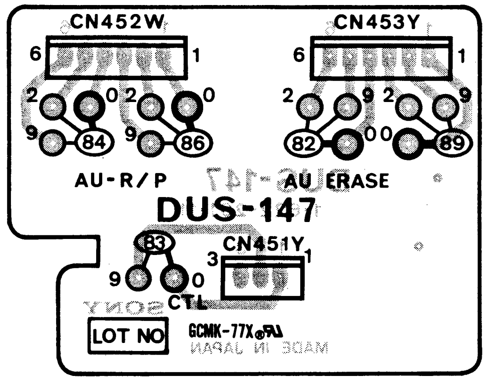
注意 ：⚠印のついた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

Note : The ⚠-marked components are critical to safety.
Replace only with same components as specified.

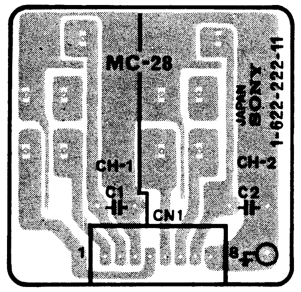
DUS-92: AUDIO CTL HEAD
DUS-147: AUDIO CTL HEAD
DUS-408: AUDIO REC LEVEL
LM-13: THREADING MOTOR
MC-28: MIC IN


CMK-77X
32
62
42
39
69
49
92
22
29
DUS-92
1-615-924-11
SONY JAPAN 99

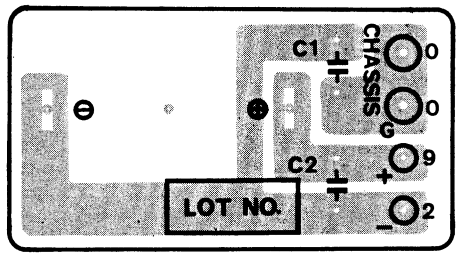
DUS-92
-COMPONENT SIDE-
1-615-924-11
VO-9600H


CN452W
CN453Y
6
1
2
0
9
84
86
82
89
AU-R/P
AU ERASE
DUS-147
83
CN451Y
3
CTL
LOT NO
GCMK-77X

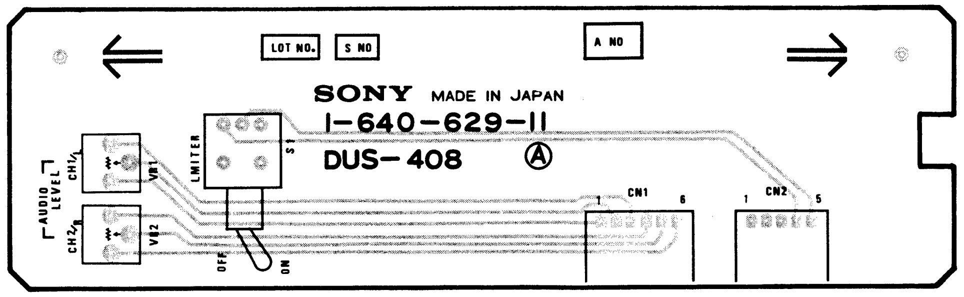
DUS-147
-COMPONENT SIDE-
1-622-261-11
VO-9600H


MC-28
JAPAN SONY 1-622-222-11
CH-1
CH-2
C1
C2
CN1
1
8

MC-28
-COMPONENT SIDE-
1-622-222-11
VO-9600H

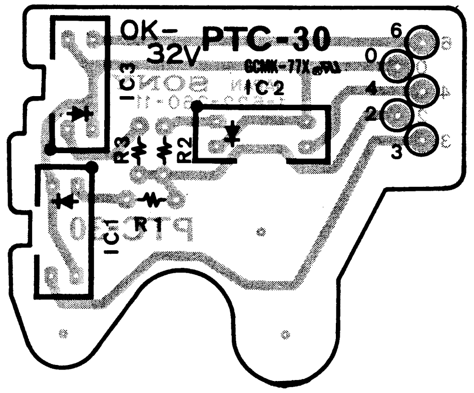

CHASSIS
C1
C2
G
LOT NO.
0
9
2

LM-13
-COMPONENT SIDE-
1-618-600-11
VO-9600H

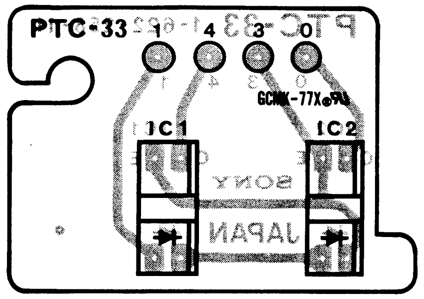

LOT NO.
S NO
A NO
SONY MADE IN JAPAN
1-640-629-11
DUS-408
Ⓐ
AUDIO LEVEL
CH1
CH2
VR1
VR2
LIMITER
S1
OFF
ON
CN1
CN2
1
6
5

DUS-408
-COMPONENT SIDE-
1-640-629-11
VO-9600H

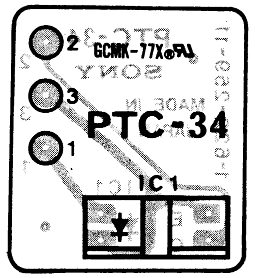
EC-28: CTL HEAD
PTC-30: SP, MISS REC. KCA DETECTOR
PTC-33: FR STOP DETECTOR
PTC-34: UNTHREADEND DETECTOR
PT-9: REEL MOTOR DRIVER


OK-32V
PTC-30
GCMK-77X
IC2
IC3
IC1
R3
R2
RT1
6
0
4
2
3

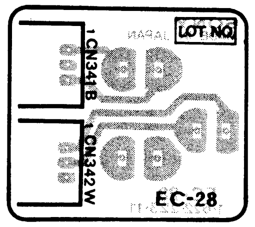
PTC-30
-COMPONENT SIDE-
1-622-260-11
VO-9600H


PTC-33
1
4
3
0
GCMK-77X
IC1
IC2
JAPAN

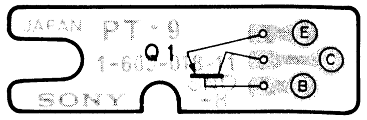
PTC-33
-COMPONENT SIDE-
1-622-258-11
VO-9600H


2
3
1
GCMK-77X
SONY
PTC-34
IC1

PTC-34
-COMPONENT SIDE-
1-622-259-11
VO-9600H

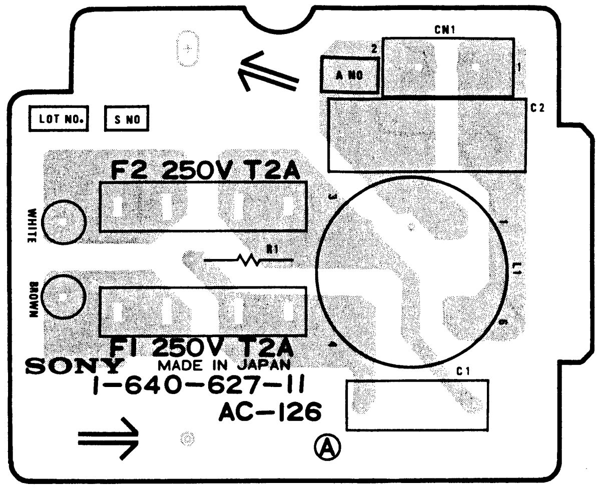

LOT NO
CN341B
CN342W
EC-28

EC-28
-COMPONENT SIDE-
1-622-228-11
VO-9600H

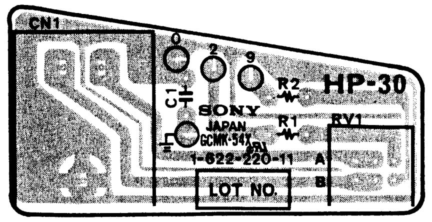


PT-9
-SOLDERING SIDE-
1-605-018-11
VO-9600H

AC-126: AC INPUT(FOR EK)
HP-30: HEADPHONES

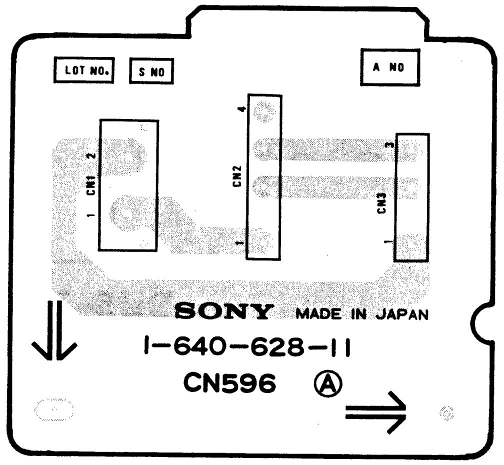

CN1
2
1
A NO
C2
LOT NO.
S NO
F2 250V T2A
WHITE
BROWN
R1
L1
F1 250V T2A
SONY MADE IN JAPAN
1-640-627-11
AC-126
C1
Ⓐ

AC-126
-COMPONENT SIDE-
1-640-627-11
VO-9600H


CN1
0
2
9
C1
R2
HP-30
SONY
JAPAN
R1
RV1
1-622-220-11
A
B
LOT NO.

HP-30
-COMPENENT SIDE-
1-622-220-11
VO-9600H

CN-596: VOLTAGE SELECTOR


LOT NO.
S NO
A NO
CN1
2
1
CN2
4
1
CN3
3
1
SONY MADE IN JAPAN
1-640-628-11
CN596 Ⓐ

CN-596
-COMPONRNT SIDE-
1-640-628-11
VO-9600H

SECTION 15
SPARE PART AND FIXTURE

15-1. PART INFORMATION

(1) The shaded and ⚠ - marked components are critical to safety. Replace only with same components as specified.

(2) Replacement Parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to "improved parts" and/or engineering changes" or "standardization of genuine parts". This manual's exploded views and electrical spare parts list indicate the part numbers of the "standardized genuine parts at the present." Regarding engineering part changes by the engineering department, refer to Sony service bulletins and service manual supplements.

(3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts lists are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

(4) Items with no part number and/or no description are not stocked because they are seldom required for routine service.

(5) (T) after a spring description is shown on the exploded views in order to indicate the number of spring turns required for the use.
Example
Spring Tension (24T); This Spring must be cut at its 24th turn for actual use.

(6) All capacitors are micro farads unless otherwise specified. All inductors are in micro henries unless otherwise specified. All resistors are in ohms.

15-2. EXPLODED VIEW

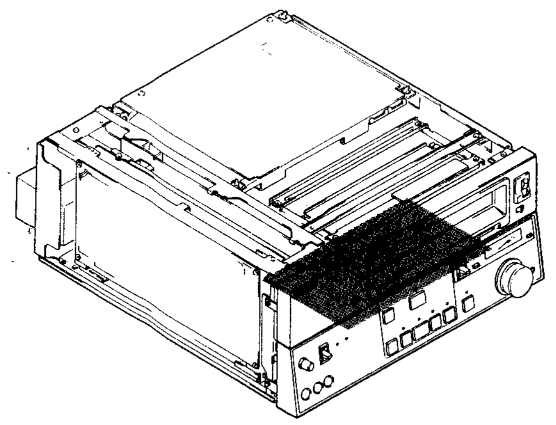
Exploded views are composed of the following blocks.

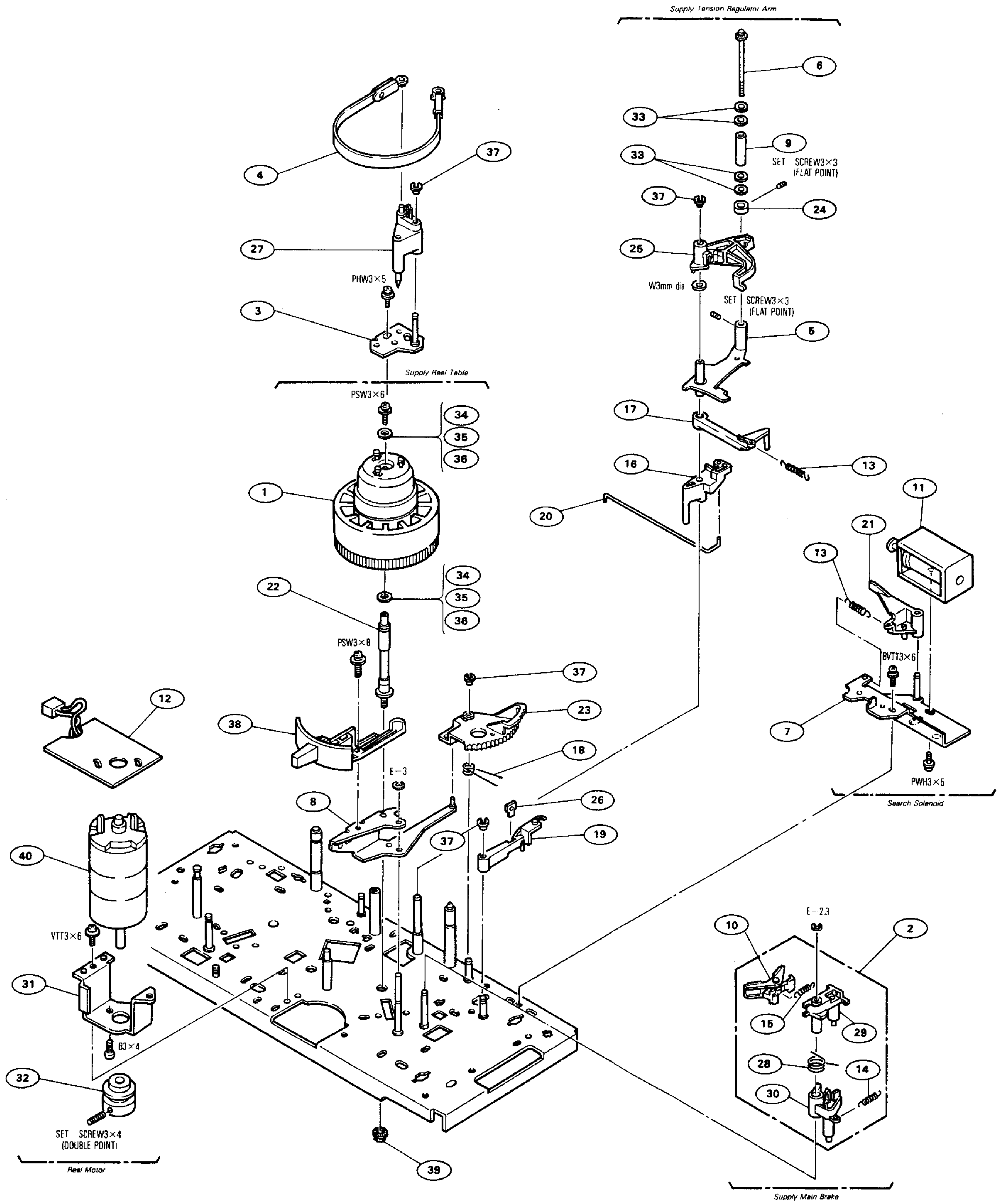
(1) Reel Chassis (1)
  S Reel Table
  S Tension Regulator Arm
  Search Solenoid
  S Main Brake
  Reel Motor
(2) Reel Chassis (2)
  T Reel Table
  FF/REW Idler
  T Main Brake
  T Tension Regulator Arm
  R Brake
(3) Reel Chassis (3)
  S Idler Solenoid
  T Idler Solenoid
  FF/REW Idler Pulley
  S Brake Solenoid
  T Brake Solenoid
(4) Threading Ring Block
  Threading Ring
  Gear Box
  T Correction Guide
  Tape Beginning Sensor
  FR Detector
  Pinch Roller
(5) Threading Arm
  T Drawer Arm
  S Drawer Arm
  S Drawer Roller
  Drawer Lever
(6) Head Drum and Capstan Blocks
  Head Drum
  Capstan Motor
  Audio/CTL Head
  Tape Guides

(7) Erase Head Base
    Erase Head Base
    S Guard
(8) Pinch Lever and Pinch Solenoid Blocks
    Pinch Lever
    Pinch Roller Pre-set Cam
    Pinch Solenoid
(9) Cassette-up Compartment Block
(10) Function Control
    Power Switch
(11) Function Control Chassis Block
    Function Control Panel
    Key Top
    Search Dial

(12) Chassis Block (1)
    Printed Circuit Boards
(13) Chassis Block (2)
    Printed Circuit Boards
    Connector Panel
(14) Level Control Panel
    Meter Panel
    Headphone Block
(15) Switching Regulator (UR-14/UR-14E)
    Power Transformer
(16) Chassis Block (3)
    Printed Circuit Boards
(17) Ornamental Panel Block
    U Case
    Bottom Board

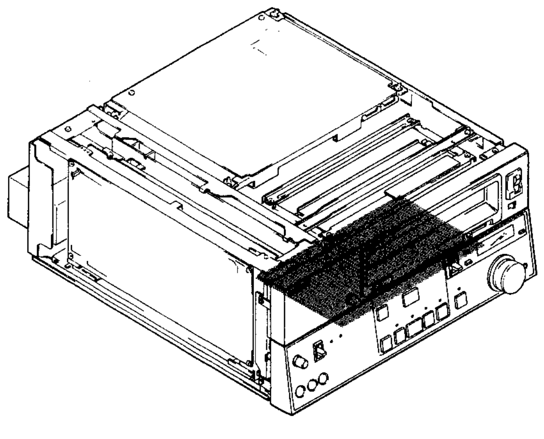
REEL CHASSIS (1)

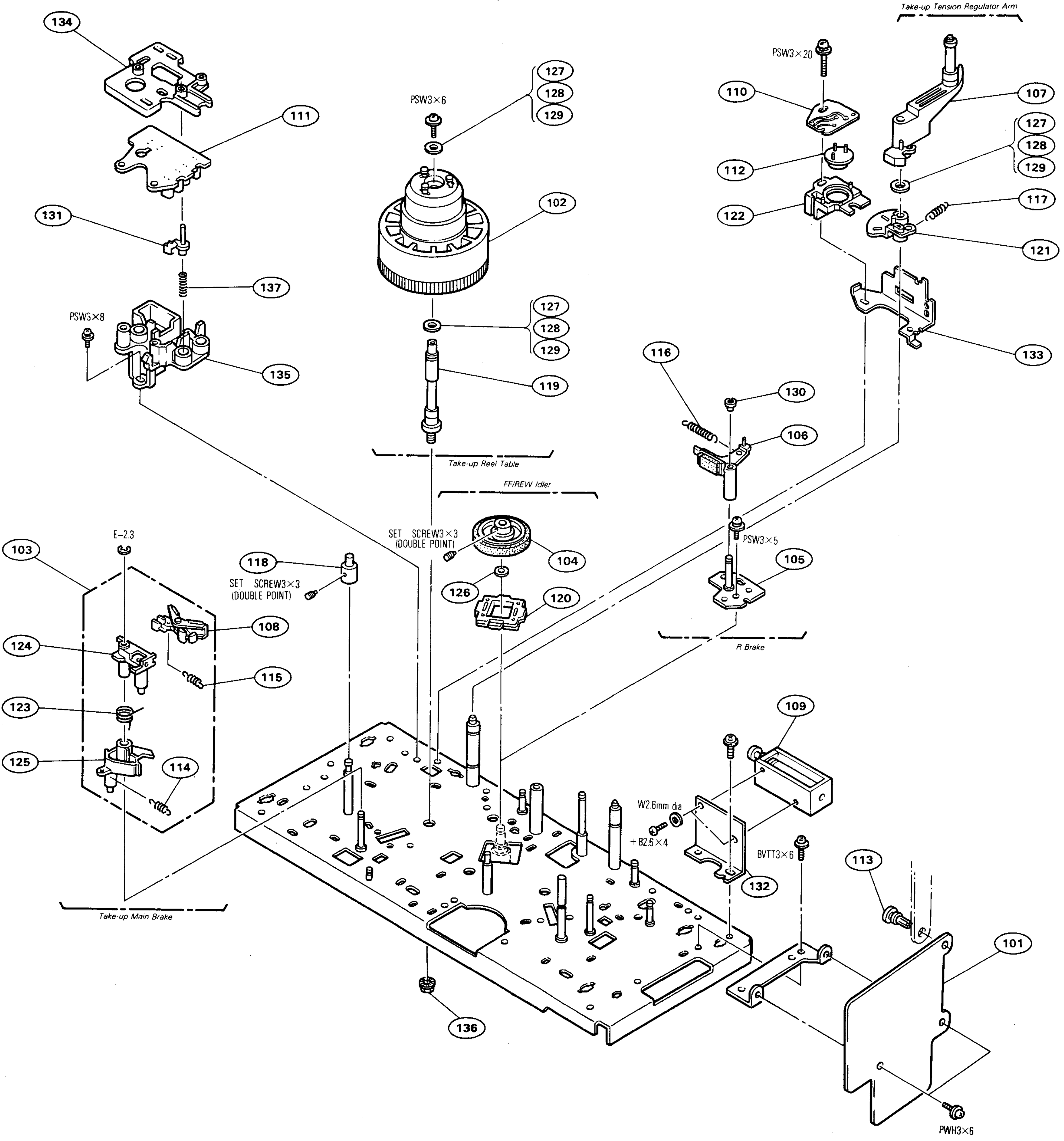



Supply Tension Regulator Arm
6
33
33
9
SET SCREW3×3 (FLAT POINT)
37
24
25
W3mm dia
SET SCREW3×3 (FLAT POINT)
5
17
13
16
20
11
21
13
BVTT3×6
7
PWH3×5
Search Solenoid
4
37
27
PHW3×5
3
Supply Reel Table
PSW3×6
34
35
36
1
34
35
36
22
PSW3×8
37
23
18
12
38
E-3
8
26
37
19
40
VTT3×6
31
B3×4
32
SET SCREW3×4 (DOUBLE POINT)
Reel Motor
39
10
E-23
2
15
29
28
14
30
Supply Main Brake

No.	Part No.	SP	Description
1	A-6739-016-C	s	TABLE ASSY, REEL
2	A-6741-038-B	s	BRAKE ASSY, MAIN
3	X-3668-706-0	o	BASE ASSY, S TENSION REGULATOR
4	X-3668-707-0	s	BAND ASSY, S TENSION REGULATOR
5	X-3668-708-0	s	ARM (A) ASSY, S TENSION REGULATOR
6	X-3668-709-0	s	SHAFT (1) ASSY, ROLLER
7	X-3668-717-0	o	BASE ASSY, SEARCH
8	X-3668-725-0	o	ARM (C) ASSY, SKEW
9	X-3668-727-0	s	GUIDE ASSY, TAPE
10	X-3668-749-0	s	HOLDER ASSY, LINING
11	1-454-417-41	s	SOLENOID, PLUNGER
12	1-618-873-11	o	PRINTED CIRCUIT BOARD, RM-39
13	3-534-238-XX	s	SPRING, TENSION (23T)
14	3-535-369-XX	s	SPRING, TENSION (12T)
15	3-548-124-00	s	SPRING, TENSION
16	3-668-787-02	s	ARM, S DETECTION
17	3-668-794-00	o	ARM (A), SKEW
18	3-668-795-00	s	SPRING
19	3-668-797-00	o	ARM, SKEW LOCK
20	3-668-804-00	s	LINK, DETECTION, TENSION
21	3-668-808-00	s	ARM, FWD, SEARCH
22	3-668-827-00	o	SHAFT (S), REEL
23	3-668-835-00	s	ARM (B), SKEW
24	3-668-874-00	s	FLANGE (1), LOWER
25	3-668-936-00	s	ARM (B), S TENSION REGULATOR
26	3-668-937-00	s	CLAW, SKEW LOCK
27	3-668-939-00	o	ARM, BAND LOCK
28	3-668-966-00	s	SPRING
29	3-668-970-00	o	ARM, BRAKE
30	3-668-971-00	o	ARM, BRAKE RELEASE
31	3-672-743-01	o	BRACKET, MOTOR
32	3-672-744-01	s	PULLEY (R), MOTOR
33	3-701-438-01	s	WASHER, POLY 2.5MM DIA., 0.25T
34	3-701-444-01	s	WASHER, POLY 6MM DIA., 0.13T
35	3-701-444-11	s	WASHER, POLY 6MM DIA., 0.25T
36	3-701-444-21	s	WASHER, POLY 6MM DIA., 0.50T
37	3-703-074-00	s	CAP 3, SHAFT
38	3-718-337-01	s	LEVER, SKEW
39	4-304-749-00	o	NUT, FLANGE
40	8-835-409-01	s	MOTOR, DC FN30-T253N1E

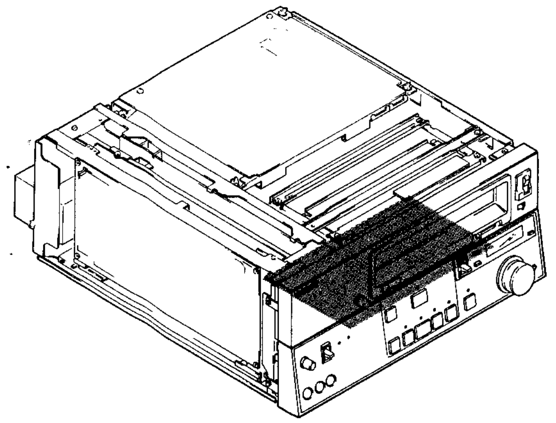
REEL CHASSIS (2)

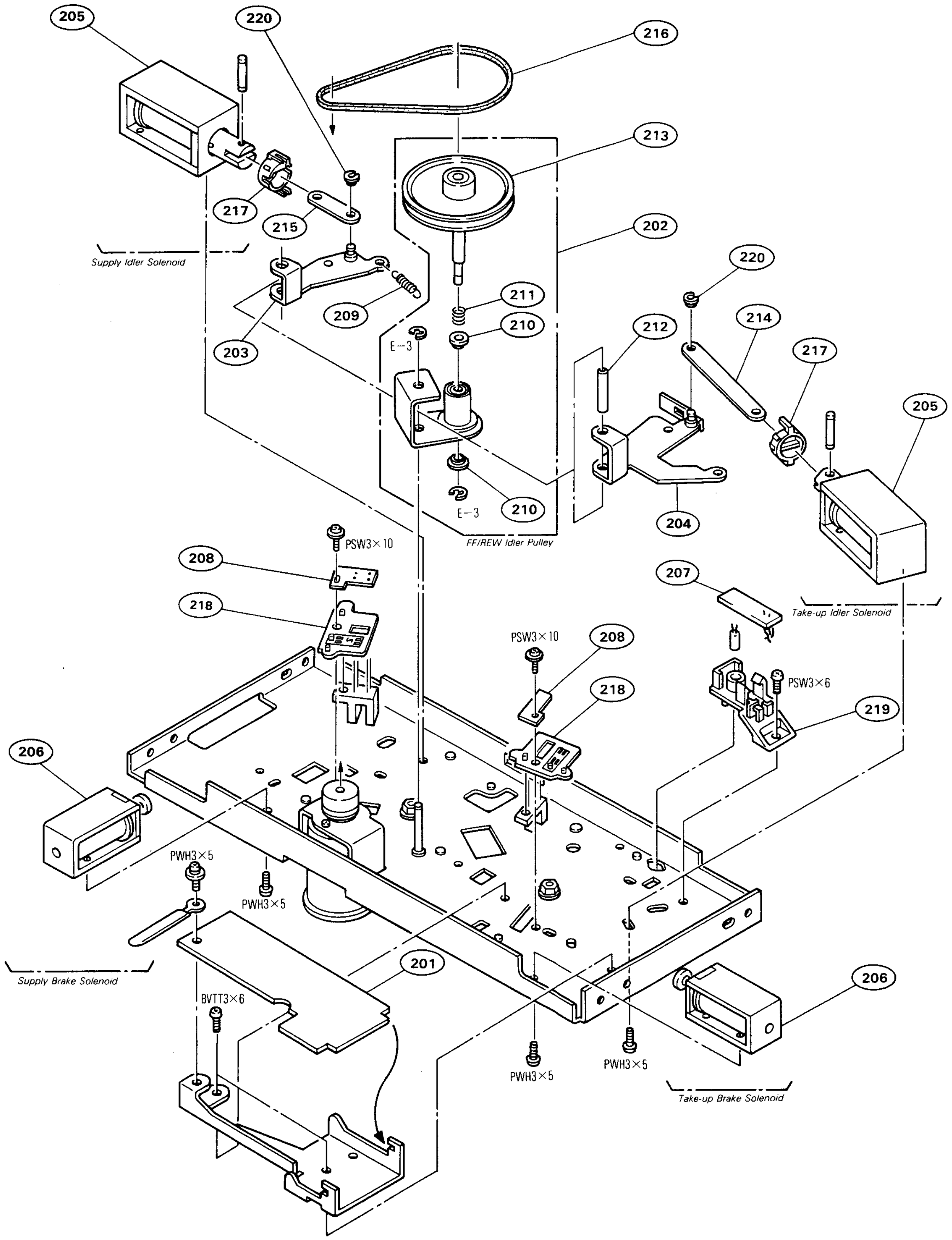



Take-up Tension Regulator Arm
134
111
131
137
PSW3×8
135
PSW3×6
127
128
129
102
127
128
129
119
Take-up Reel Table
FF/REW Idler
PSW3×20
110
112
122
107
127
128
129
117
121
133
116
130
106
PSW3×5
105
R Brake
103
E-2.3
118
SET SCREW3×3 (DOUBLE POINT)
SET SCREW3×3 (DOUBLE POINT)
104
126
120
108
124
115
123
125
114
Take-up Main Brake
109
W2.6mm dia
+B2.6×4
BVTT3×6
132
113
101
136
PWH3×6

No.	Part No.	SP	Description
101	A-6725-569-A	o	MOUNTED CIRCUIT BOARD, PD-40
102	A-6739-016-C	s	TABLE ASSY, REEL
103	A-6741-038-B	s	BRAKE ASSY, MAIN
104	X-3646-026-0	s	IDLER ASSY, FF
105	X-3668-705-0	o	BASE ASSY, R BRAKE
106	X-3668-737-0	s	BRAKE ASSY, R
107	X-3668-738-0	s	ARM ASSY, T TENSION REGULATOR
108	X-3668-749-0	s	HOLDER ASSY, LINING
109	1-454-446-11	s	SOLENOID, PLUNGER
110	1-618-599-11	o	PRINTED CIRCUIT BOARD, SE-46
111	1-622-260-11	o	PRINTED CIRCUIT BOARD, PTC-30
112	1-806-232-21	s	DETECTOR MB-1102/S.N
113	2-382-416-01	o	SUPPORT, PC
114	3-535-369-XX	s	SPRING, TENSION (12T)
115	3-548-124-00	s	SPRING, TENSION
116	3-549-861-00	s	SPRING, TENSION
117	3-642-427-00	s	SPRING, TENSION
118	3-668-031-00	o	RETAINER (UPPER), CASSETTE
119	3-668-766-00	o	SHAFT (T), REEL
120	3-668-780-00	o	CUSHION, IDLER
121	3-668-788-00	s	ARM, T DETECTION
122	3-668-789-00	o	HOLDER, BRIDGE, PHOTO
123	3-668-966-00	s	SPRING
124	3-668-970-00	o	ARM, BRAKE
125	3-668-971-00	o	ARM, BRAKE RELEASE
126	3-701-441-21	s	WASHER, POLY 6MM DIA., 0.50T
127	3-701-444-01	s	WASHER, POLY 6MM DIA., 0.13T
128	3-701-444-11	s	WASHER, POLY 6MM DIA., 0.25T
129	3-701-444-21	s	WASHER, POLY 6MM DIA., 0.50T
130	3-703-074-00	s	CAP 3, SHAFT
131	3-718-307-11	s	ACTUATOR, TRC
132	3-718-308-01	o	BRACKET, SK SOLENOID
133	3-718-326-01	o	STOPPER (SP)
134	3-718-342-01	o	TRC-BOX (UPPER)
135	3-718-343-01	o	TRC-BOX (LOWER)
136	4-304-749-00	o	NUT, FLANGE
137	4-858-779-00	s	SPRING, COMPRESSION

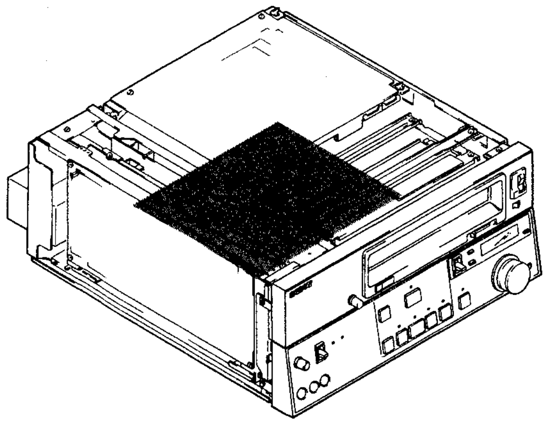
REEL CHASSIS (3)

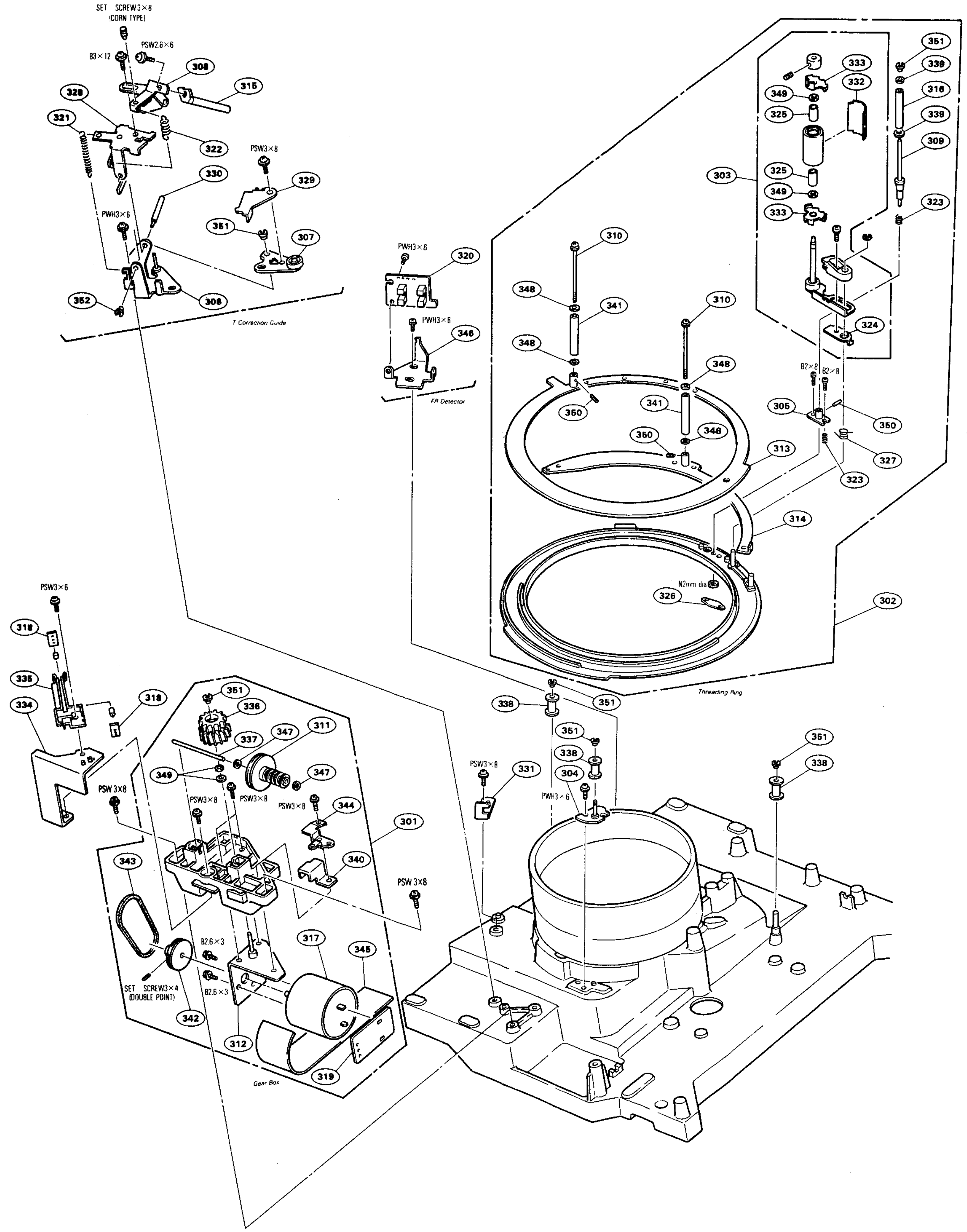



205
220
216
213
202
217
215
Supply Idler Solenoid
209
211
210
203
E-3
220
212
214
217
205
210
E-3
204
FF/REW Idler Pulley
PSW3×10
208
218
207
Take-up Idler Solenoid
PSW3×10
208
218
PSW3×6
219
206
PWH3×5
PWH3×5
201
Supply Brake Solenoid
BVTT3×6
206
PWH3×5
PWH3×5
Take-up Brake Solenoid

No.	Part No.	SP	Description
201	A-6725-570-A	o	MOUNTED CIRCUIT BOARD, PD-41
202	A-6740-069-B	s	PULLEY BLOCK ASSY, IDLER
203	X-3668-703-0	o	LEVER ASSY, S
204	X-3668-704-0	o	LEVER ASSY, T
205	1-454-415-11	s	SOLENOID, PLUNGER
206	1-454-417-41	s	SOLENOID, PLUNGER
207	1-618-597-11	o	PRINTED CIRCUIT BOARD, TG-22
208	1-622-218-11	o	PRINTED CCIRCUIT BOARD, PTC-35
209	3-437-452-00	s	SPRING, TENSION
210	3-650-512-00	s	COLLAR, (A)
211	3-651-572-00	s	SPRING, COMPRESSION
212	3-668-048-11	s	SPACER (DIA. 4X20)
213	3-668-772-00	s	SHAFT, IDLER PULLEY
214	3-668-781-00	o	JOINT, T
215	3-668-782-00	o	JOINT, S
216	3-668-785-00	s	BELT (67X2)
217	3-668-826-00	s	RETAINER, PIN, SOLENOID
218	3-668-828-02	o	BRACKET, PS
219	3-672-752-01	o	HOLDER, LED
220	3-703-074-00	s	CAP 3, SHAFT

THREADING RING BLOCK




SET SCREW3×8 (CORN TYPE)
PSW2.6×6
B3×12
PSW3×8
PWH3×6
T Correction Guide
PWH3×6
PWH3×6
FR Detector
B2×8
B2×8
N2mm dia
Threading Ring
PSW3×6
PSW3×8
PSW3×8
PWH3×6
PSW3×8
PSW3×8
PSW 3x8
B2.6×3
B2.6×3
SET SCREW3×4 (DOUBLE POINT)
Gear Box
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
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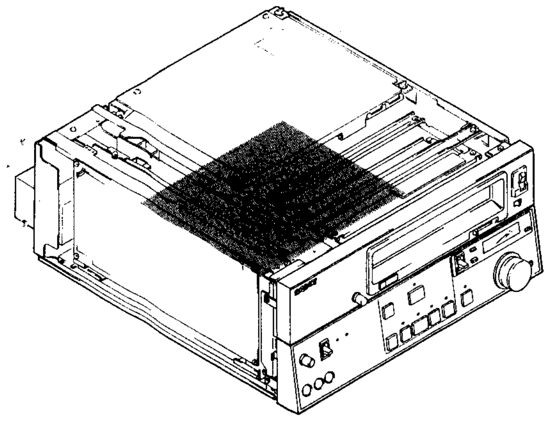
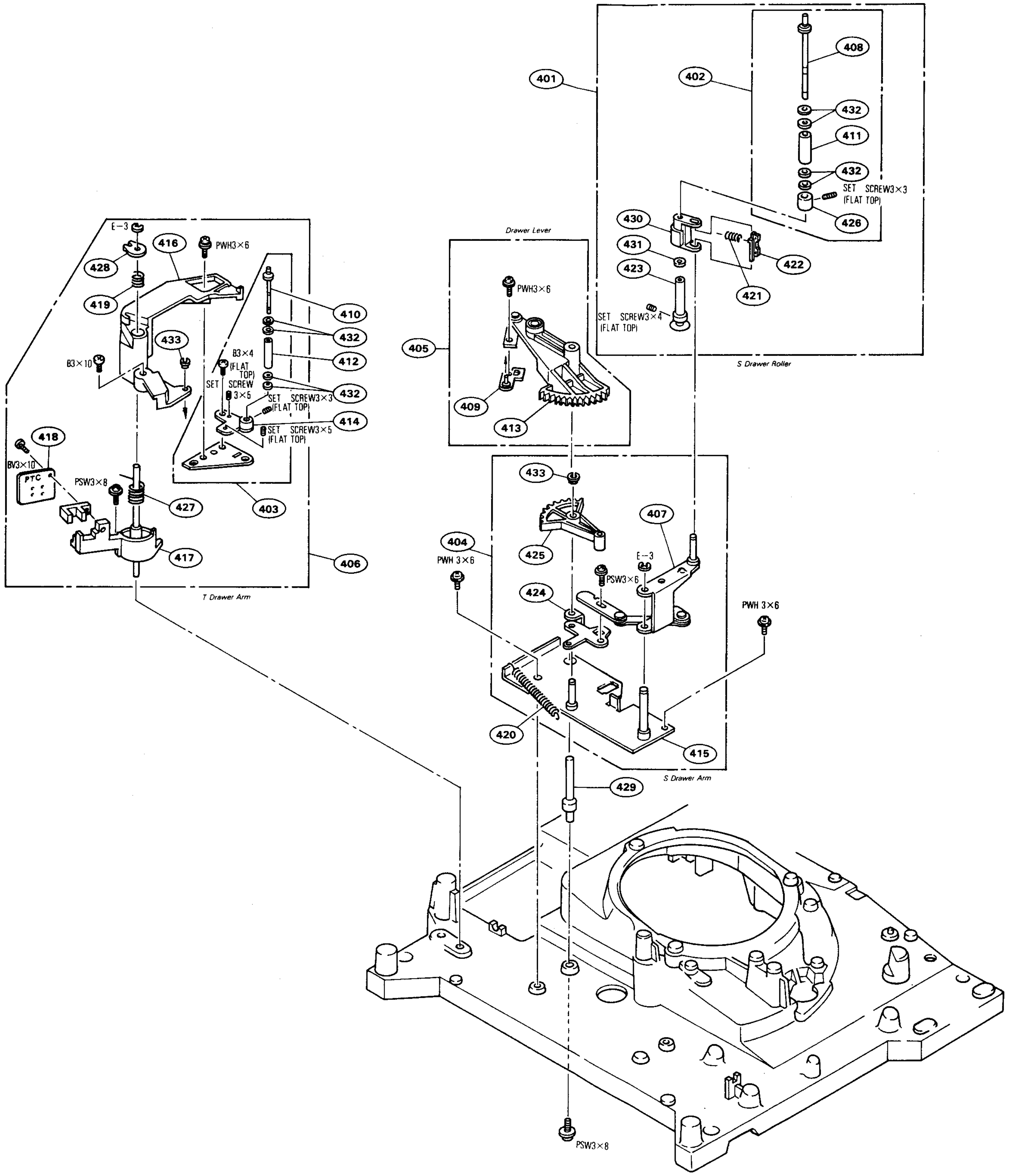
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352

No.	Part No.	SP	Description
301	A-6750-219-A	s	BOX BLOCK ASSY, GEAR
302	A-6750-220-A	s	RING BLOCK ASSY, MAIN
303	A-6750-226-A	s	PINCH ROLLER BLOCK ASSY
304	X-3668-719-0	o	ROLLER ASSY, RING
305	X-3668-720-0	o	BASE ASSY, ROLLER, PRECEDING
306	X-3668-721-0	o	CHASSIS ASSY, GUIDE
307	X-3668-722-0	s	LOCKER ASSY, FR
308	X-3668-723-2	o	ARM ASSY, GUIDE, T CORRECTION
309	X-3668-724-3	s	SHAFT ASSY, ROLLER, PRECEDING
310	X-3668-733-0	s	SHAFT ASSY, SR GUIDE
311	X-3668-743-0	s	PULLEY ASSY, WORM
312	X-3672-704-1	o	BRACKET ASSY, MOTOR
313	X-3672-710-1	o	RING (UPPER) ASSY, SUB
314	X-3672-711-1	o	RING (LOWER) ASSY, SUB
315	X-3672-718-2	s	SHAFT ASSY, GUIDE
316	X-3718-303-1	s	GUIDE ASSY (T), TAPE
317	1-541-376-11	s	MOTOR, DC DNR-4700A
318	1-603-737-00	o	PRINTED CIRCUIT BOARD, PH-5
319	1-618-600-11	o	PRINTED CIRCUIT BOARD, LM-13
320	1-622-258-11	o	PRINTED CIRCUIT BOARD, PTC-33
321	3-143-067-00	s	SPRING, TENSION
322	3-437-289-00	s	SPRING, TENSION
323	3-634-196-00	s	SPRING
324	3-642-558-00	s	ARM (C), PINCH ROLLER
325	3-654-603-00	s	SPACER
326	3-668-743-00	o	NUT, PLATE, ROLLER, PRECEDING
327	3-668-745-00	s	SPRING
328	3-668-749-02	o	ARM (A), GUIDE, T CORRECTION
329	3-668-753-00	o	PLATE, ADJUSTMENT, FR LOCKER
330	3-668-754-00	o	SHAFT, GUIDE ARM, T CORRECTION
331	3-668-755-00	o	PLATE, STOPPER, SR
332	3-668-888-00	o	COVER, PINCH
333	3-668-889-00	o	CAP, PINCH ROLLER
334	3-668-900-00	o	BRACKET, T SENSOR
335	3-668-901-00	s	HOLDER, T PHOTO
336	3-668-947-00	s	PINION, L
337	3-668-948-00	o	SHAFT, WORM
338	3-668-963-03	s	ROLLER, RING
339	3-669-926-01	s	WASHER (3), THRUST
340	3-669-960-00	o	RETAINER, SHAFT
341	3-672-727-01	s	ROLLER, SR GUIDE
342	3-672-736-01	s	PULLEY, LM
343	3-672-737-01	s	BELT, SQUARE
344	3-672-738-01	o	PLATE, GROUND, SLED
345	3-672-739-01	o	BELT, LM SHIELD
346	3-672-790-01	o	BRACKET, FR DETECTION
347	3-701-437-21	s	WASHER, POLY 2MM DIA., 0.50T
348	3-701-438-11	s	WASHER, POLY 2.5MM DIA., 0.25T
349	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.50T
350	3-701-505-00	s	SET SCREW, DOUBLE POINT 3X3
351	3-703-074-00	s	CAP 3, SHAFT
352	3-703-075-00	s	CAP 2, SHAFT

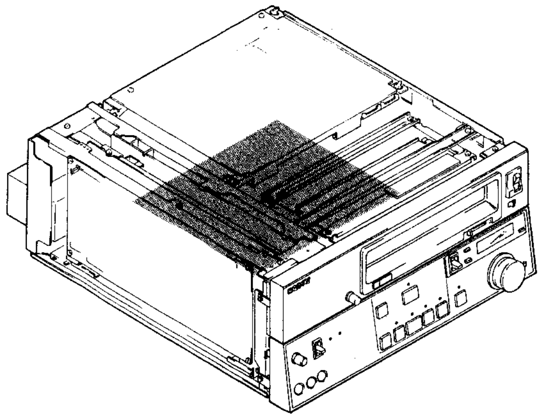
THREADING ARM

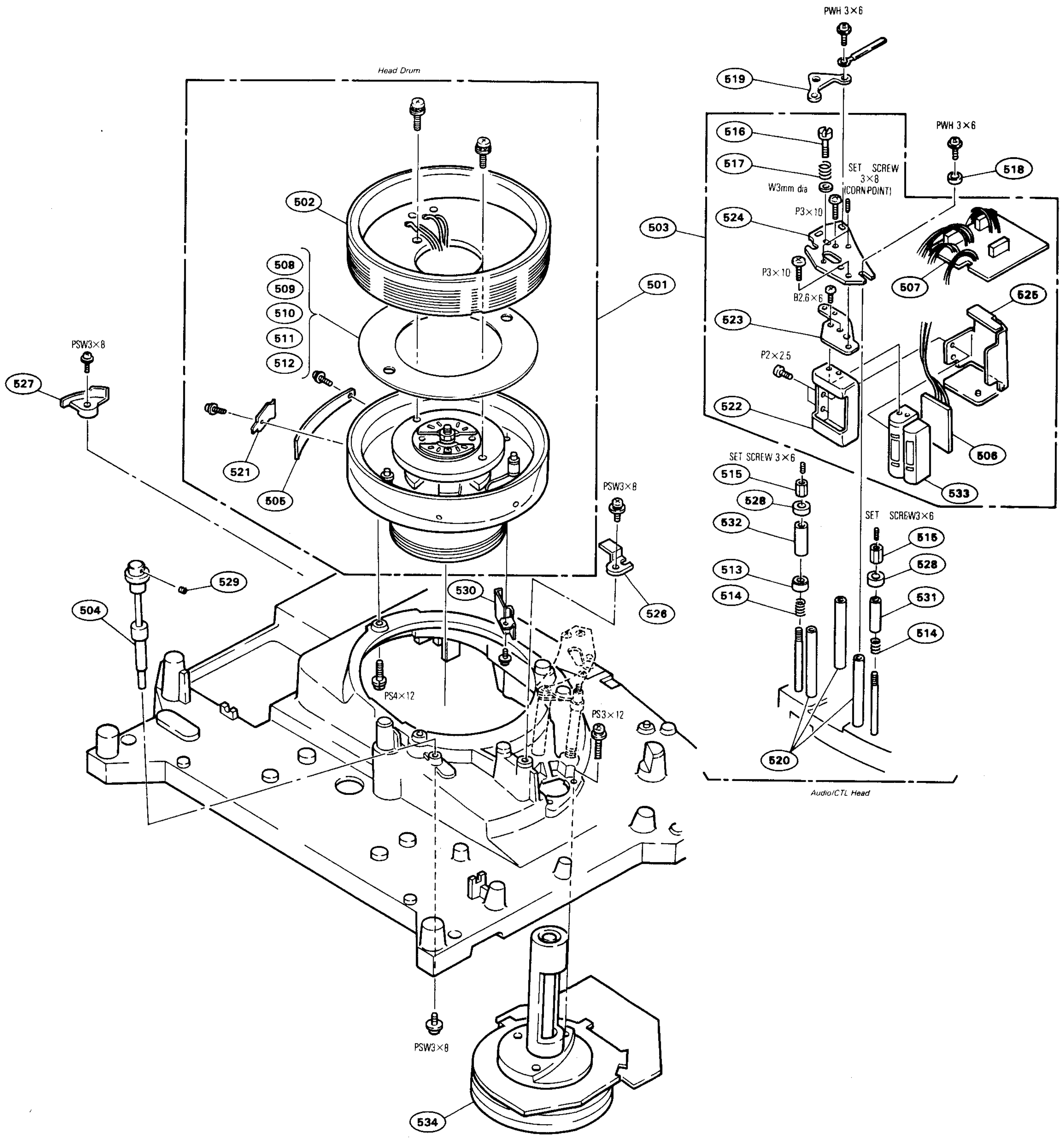



401
402
408
432
411
432
SET SCREW3×3 (FLAT TOP)
426
430
431
423
422
421
SET SCREW3×4 (FLAT TOP)
S Drawer Roller
Drawer Lever
PWH3×6
405
409
413
E-3
416
PWH3×6
428
419
410
433
432
412
B3×10
B3×4 (FLAT TOP)
SET SCREW
B3×5
SET SCREW3×3 (FLAT TOP)
432
414
SET SCREW3×5 (FLAT TOP)
418
BV3×10
PTC
PSW3×8
427
403
417
406
T Drawer Arm
433
407
404
PWH 3×6
425
E-3
PSW3×6
424
PWH 3×6
420
415
S Drawer Arm
429
PSW3×8

No.	Part No.	SP	Description
401	A-6746-021-B	s	ROLLER BLOCK ASSY, S DRAWER
402	A-6746-034-A	s	ROLLER BLOCK ASSY (2), DRAWER
403	A-6746-045-A	s	ROLLER BLOCK ASSY, T GUIDE
404	A-6750-201-A	o	ARM BLOCK ASSY, S DRAWER
405	A-6750-202-A	o	LEVER BLOCK ASSY, DRAWER
406	A-6750-218-A	o	ARM BLOCK ASSY, T DRAWER
407	X-3668-711-0	o	ARM ASSY, S DRAWER
408	X-3668-712-3	s	SHAFT (2) ASSY, ROLLER
409	X-3668-713-0	o	LINK (B) ASSY, DRIVING
410	X-3668-716-0	s	SHAFT (3) ASSY, ROLLER
411	X-3668-718-0	s	GUIDE ASSY, TAPE
412	X-3668-727-0	s	GUIDE ASSY, TAPE
413	X-3668-729-0	s	LEVER ASSY, DRAWER
414	X-3672-705-1	o	PLATE ASSY, GUIDE, T
415	X-3672-706-1	o	BASE ASSY, S DRAWER ARM
416	X-3672-708-1	o	ARM ASSY, T DRAWER
417	X-3718-305-1	o	RETAINER ASSY, ARM, T DRAWER
418	1-622-259-11	o	PRINTED CIRCUIT BOARD, PTC-34
419	3-534-854-00	s	SPRING, COMPRESSION
420	3-540-506-00	s	SPRING, TENSION
421	3-644-718-00	s	SPRING, COMPRESSION
422	3-668-718-00	s	RETAINER, SPRING, S DRAWER
423	3-668-719-00	s	HOLDER (L), S GUIDE
424	3-668-720-00	o	LIMITER, S DRAWER
425	3-668-721-00	s	ARM, S DRIVING
426	3-668-724-00	o	FLANGE (2), LOWER
427	3-668-734-00	o	SPRING
428	3-668-735-00	s	RETAINER, SPRING
429	3-668-760-00	o	SHAFT, DRAWER LEVER
430	3-668-833-00	s	HOLDER (M), GUIDE, S
431	3-669-946-00	s	RING (P4), O
432	3-701-438-01	s	WASHER
433	3-703-074-00	s	CAP 3, SHAFT

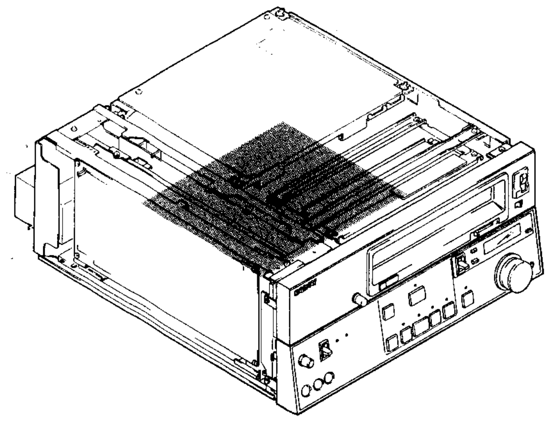
HEAD DRUM AND CAPSTAN BLOCKS

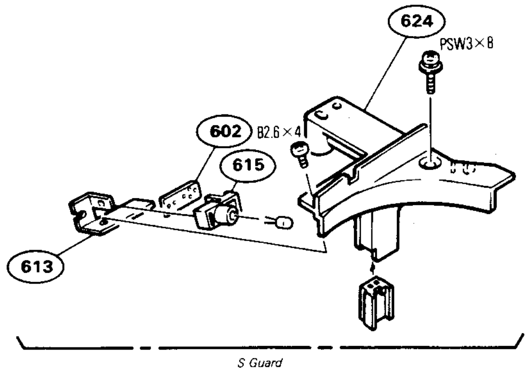



Head Drum
PWH 3×6
519
516
517
SET SCREW 3×8 (CORN-POINT)
W3mm dia
P3×10
524
503
502
508
509
510
511
512
501
PWH 3×6
518
507
525
P3×10
B2.6×6
523
P2×2.5
522
506
533
SET SCREW 3×6
515
528
532
513
514
SET SCREW3×6
515
528
531
514
520
Audio/CTL Head
PSW3×8
527
521
505
PSW3×8
526
529
504
530
PS4×12
PS3×12
PSW3×8
534

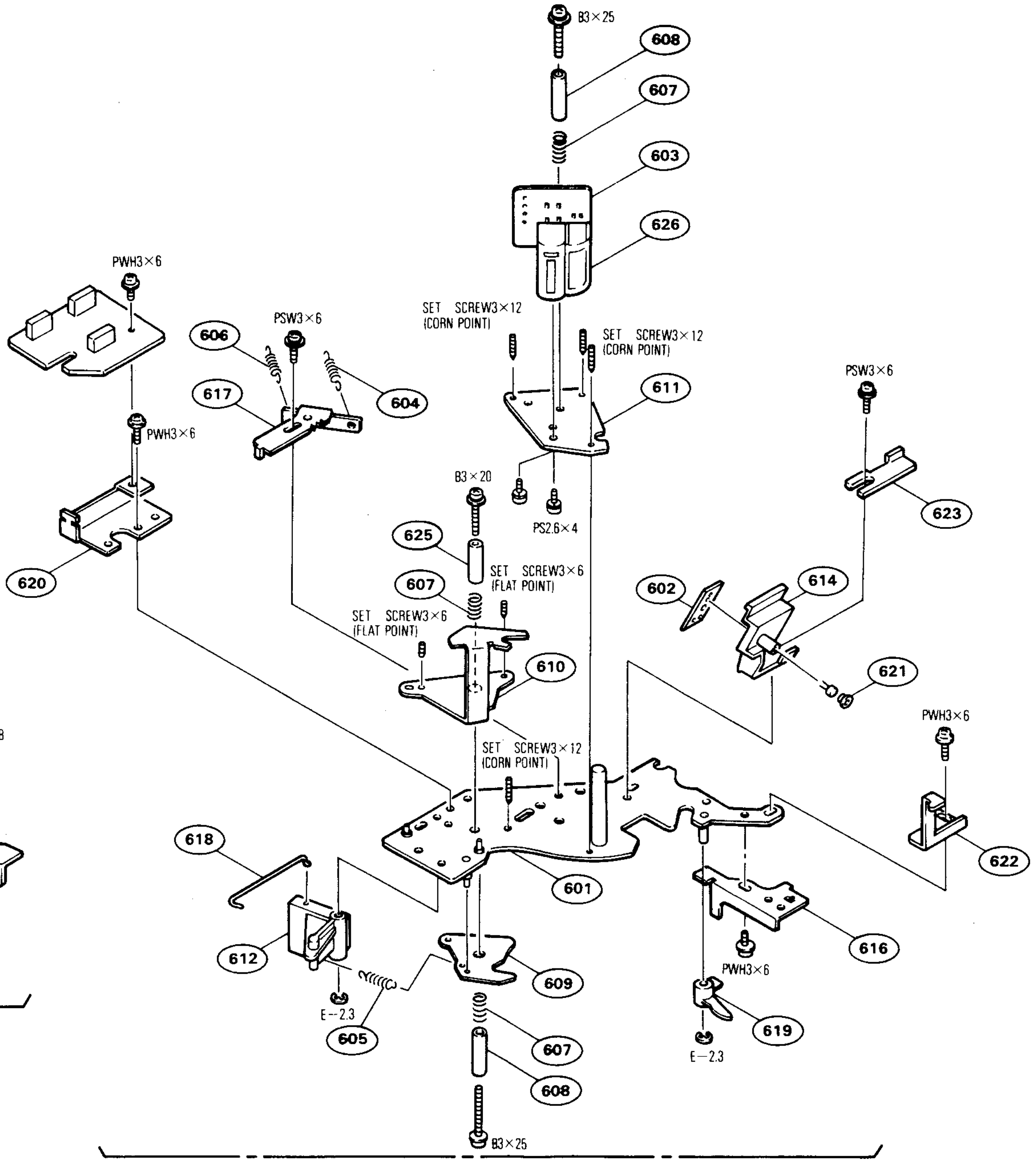
No.	Part No.	SP	Description
501	A-6709-714-A	s	DRUM ASSY (DUH-51A-R)
502	A-6709-715-A	s	DRUM ASSY, ROTARY (UPPER) (DUR-51-R)
503	A-6736-071-B	o	HEAD BLOCK ASSY, AUDIO
504	A-6746-052-A	s	ROLLER ASSY, GUIDE, TAPE
505	1-586-633-00	s	SENOR, CONDENSATION
506	1-615-924-11	o	PRINTED CIRCUIT BOARD, DUS-92
507	1-622-261-11	o	PRINTED CIRCUIT BOARD, DUS-147
508	3-630-029-01	s	SPACER, FLANGE (0.01T)
509	3-630-029-11	s	SPACER, FLANGE (0.02T)
510	3-630-029-21	s	SPACER, FLANGE (0.05T)
511	3-630-029-31	s	SPACER, FLANGE (0.1T)
512	3-630-029-41	s	SPACER, FLANGE (0.03T)
513	3-641-612-00	s	GUIDE, TAPE
514	3-641-615-00	s	SPRING, COMPRESSION
515	3-641-616-00	s	NUT, TAPE GUIDE ADJUSTMENT
516	3-641-621-00	s	SCREW, HEAD ADJUSTING
517	3-641-622-00	s	SPRING, COMPRESSION
518	3-645-076-00	o	WASHER, M-REEL S
519	3-647-815-00	o	PLATE, ADJUSTMENT, CTL HEAD
520	3-647-816-00	o	POLE, SUPPORT, CTL BRACKET
521	3-655-631-00	o	TERMINAL, GROUND
522	3-655-675-02	o	CASE (F), AU
523	3-655-676-01	o	BRACKET (A), CTL HEAD
524	3-655-677-01	o	BRACKET (B), CTL HEAD
525	3-655-678-03	o	CASE (B), AU
526	3-672-762-01	o	PIN, DRUM
527	3-672-763-01	o	CAM, P OFFSET PREVENTION
528	3-688-807-01	s	FLANGE, TAPE GUIDE
529	3-701-506-01	s	SET SCREW, DOUBLE POINT 3X4
530	3-710-826-01	o	SHIELD, CN
531	3-718-387-01	s	GUIDE (TG-3N), TAPE
532	3-718-388-01	s	GUIDE (TG-4N), TAPE
533	8-825-578-22	s	HEAD, ACE
534	8-835-258-02	s	MOTOR, DC BHF-1915B

ERASE HEAD BASE




624
PSW3×8
602
B2.6×4
615
613

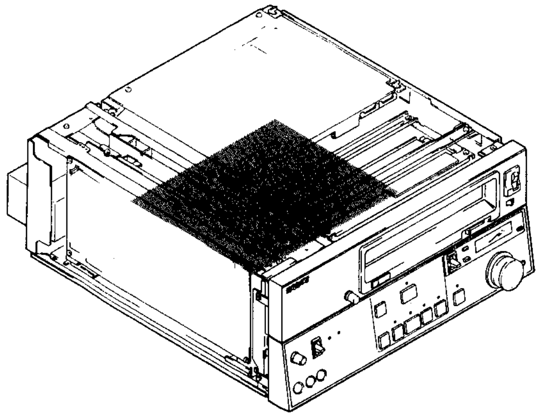
S Guard

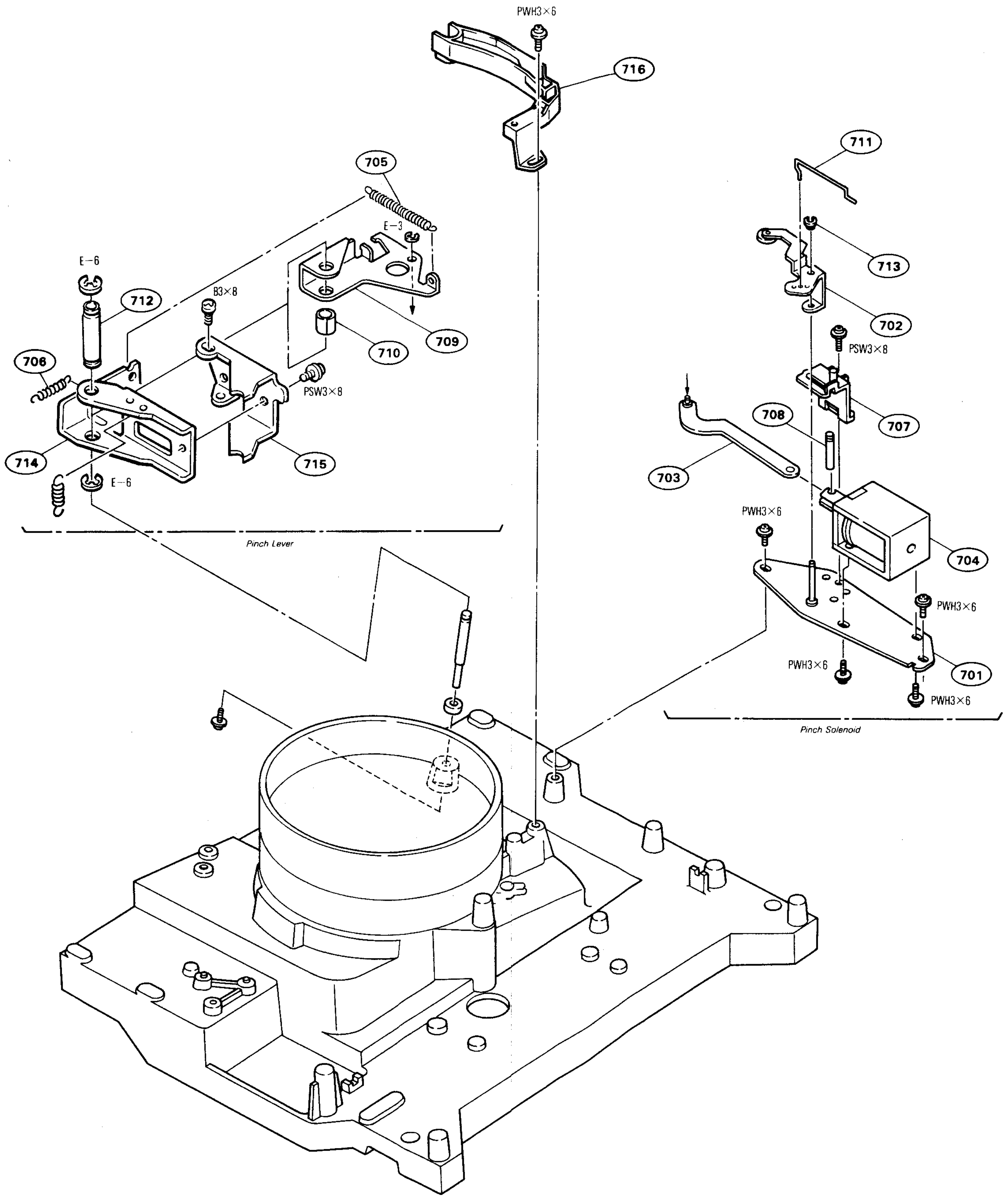

B3×25
608
607
603
626
PWH3×6
PSW3×6
606
617
604
SET SCREW3×12 (CORN POINT)
SET SCREW3×12 (CORN POINT)
611
PSW3×6
623
PWH3×6
B3×20
PS2.6×4
625
620
607
SET SCREW3×6 (FLAT POINT)
SET SCREW3×6 (FLAT POINT)
602
614
610
621
PWH3×6
SET SCREW3×12 (CORN POINT)
618
601
622
616
612
609
PWH3×6
619
E-2.3
605
607
608
E-2.3
B3×25

Erase Head Base

No.	Part No.	SP	Description
601	X-3668-728-0	o	DECK ASSY, E HEAD
602	1-603-737-00	o	PRINTED CIRCUIT BOARD, PH-5
603	1-622-223-11	o	PRINTED CIRCUIT BOARD, EC-28
604	3-534-238-XX	s	SPRING, TENSION (23T)
605	3-535-531-00	s	SPRING, TENSION
606	3-538-102-00	s	SPRING, TENSION
607	3-637-335-00	s	SPRING, COMPRESSION (C)
608	3-657-086-00	o	SPACER (3X20)
609	3-668-705-00	s	HOLDER (LOWER), S
610	3-668-706-02	s	HOLDER (UPPER), S
611	3-668-707-03	o	TABLE, HEAD, E
612	3-668-708-00	o	ARM, DRIVING, CORRECTION GUIDE
613	3-668-809-02	o	BRACKET, HOLDER
614	3-668-832-02	o	HOLDER (S)
615	3-668-837-00	o	HOLDER, LED
616	3-668-859-00	o	STOPPER, RING
617	3-668-860-00	o	HOOK, SPRING, TENSION REGULATOR
618	3-668-884-03	o	JOINT, RESERVE PRESS
619	3-668-894-00	o	LEVER, RELEASE
620	3-668-962-00	o	BRACKET, AH PC BOARD
621	3-669-920-00	o	COVER, S PHOTO
622	3-669-963-00	o	SPRING, LEAF, GROUND
623	3-669-964-00	o	PLATE, GROUND
624	3-672-764-04	s	GUARD, S
625	4-855-006-11	s	SPACER (3X14)
626	8-825-513-20	s	HEAD, CTL ERASE (EPP170-58)

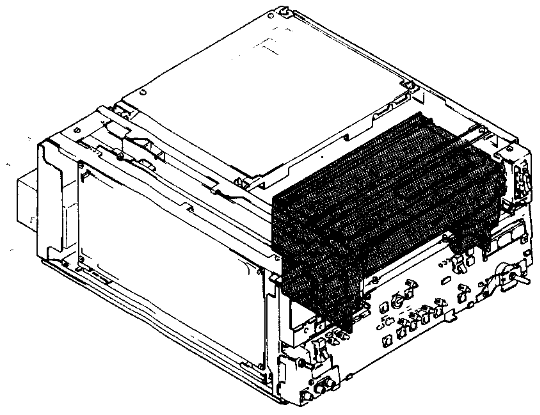
PINCH LEVER AND PINCH SOLENOID BLOCKS

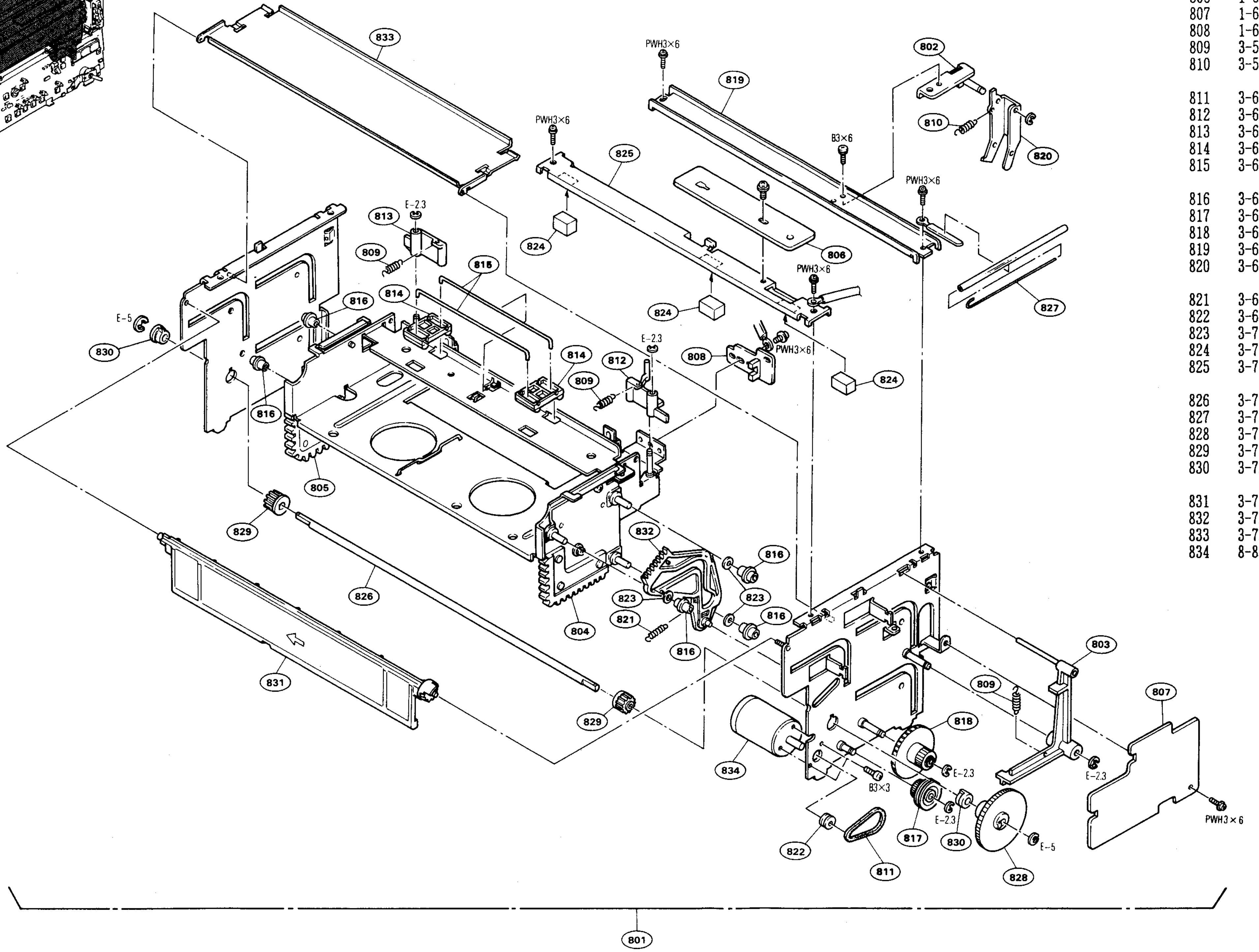



PWH3×6
716
711
705
E-3
713
E-6
712
B3×8
702
710
709
PSW3×8
706
PSW3×8
708
707
714
715
703
E-6
PWH3×6
704
Pinch Lever
PWH3×6
PWH3×6
701
PWH3×6
Pinch Solenoid

No.	Part No.	SP	Description
701	X-3668-734-0	o	BASE ASSY, PINCH PRESS
702	X-3668-735-3	s	LEVER ASSY, RESERVE PRESS
703	X-3668-736-0	o	JOINT ASSY
704	1-454-416-41	s	SOLENOID, PLUNGER
705	3-610-265-02	s	SPRING
706	3-645-392-00	s	SPRING, TENSION
707	3-668-863-00	s	GUIDE, ARBOR
708	3-668-864-00	s	PIN, SOLENOID
709	3-668-865-00	o	LEVER (B), PINCH PRESS
710	3-668-867-00	o	SPACER (8X9)
711	3-668-884-03	o	JOINT, RESERVE PRESS
712	3-668-896-00	o	SLEEVE, PRESS LEVER, PINCH
713	3-703-074-00	s	CAP 3, SHAFT
714	3-718-364-01	o	LEVER (A), PINCH PRESS
715	3-718-365-01	o	PLATE, PRESS, PINCH
716	3-718-427-02	o	DECK, RESERVE PRESS

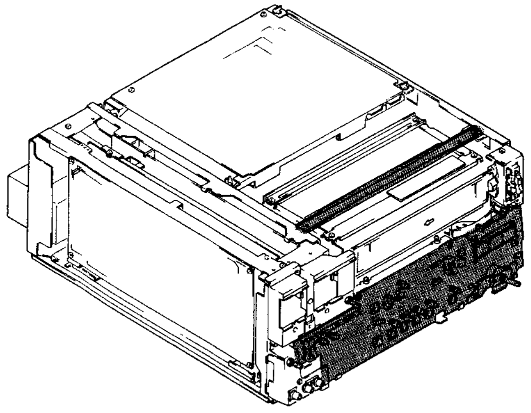
CASSETTE-UP COMPARTMENT BLOCK

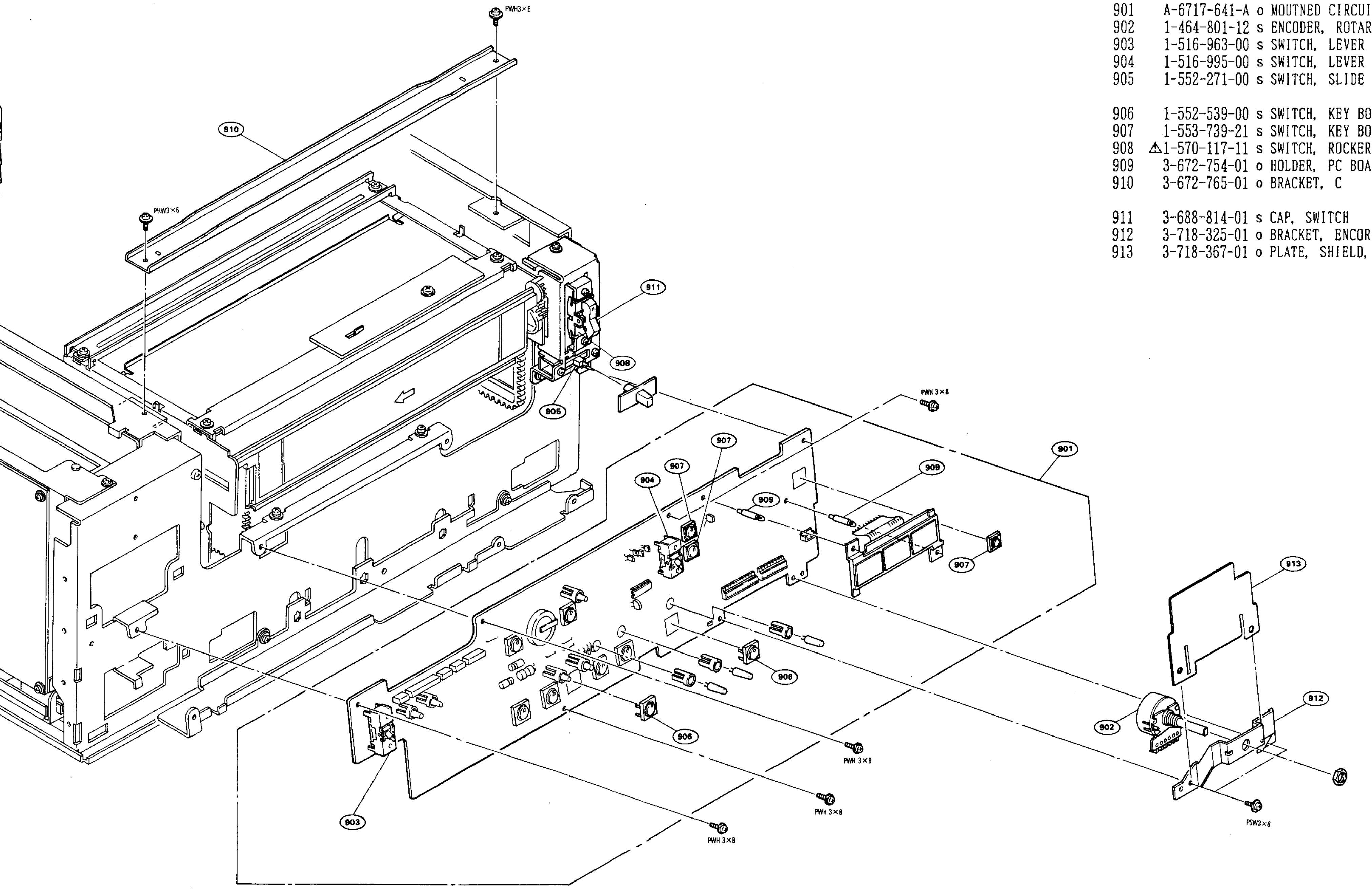



833
PWH3×6
802
819
810
820
PWH3×6
825
B3×6
PWH3×6
813
E-2.3
824
806
809
815
PWH3×6
827
816
814
824
E-5
830
E-2.3
814
812
808
PWH3×6
824
809
816
805
829
832
816
826
823
823
821
816
804
816
803
831
809
807
818
829
834
E-2.3
B3×3
E-2.3
E-2.3
PWH3×6
822
817
830
E-5
811
828
801

No.	Part No.	SP	Description
801	A-6751-391-D	s	CASSETTE-UP BLOCK ASSY
802	X-3165-158-1	o	HOLDER ASSY, LID OPEN ARM
803	X-3668-059-0	s	ARM ASSY, SWITCH, DOWN
804	X-3718-661-1	s	PLATE (RIGHT) ASSY, RACK
805	X-3718-662-1	s	PLATE (LEFT) ASSY, RACK
806	1-623-101-11	o	PRINTED CIRCUIT BOARD, LP-41
807	1-627-572-12	o	PRINTED CIRCUIT BOARD, CC-36
808	1-627-573-13	o	PRINTED CIRCUIT BOARD, CC-37
809	3-507-051-00	s	SPRING, TENSION
810	3-536-780-11	s	SPRING, TENSION (22T)
811	3-653-387-00	s	BELT, LM
812	3-668-295-00	o	LEVER (RIGHT), CASSETTE PUSH-OUT
813	3-668-296-00	o	LEVER (LEFT), CASSETTE PUSH-OUT
814	3-668-297-00	s	RETAINER, CASSETTE
815	3-668-298-02	o	SPRING
816	3-668-299-00	s	ROLLER, GUIDE
817	3-668-303-00	s	GEAR (A)
818	3-668-304-00	s	GEAR (B)
819	3-668-307-02	o	JOINT (R), LEFT & RIGHT
820	3-668-310-02	o	ARM, LID OPEN
821	3-669-980-00	s	SPRING, TENSION (20T)
822	3-672-750-01	s	PULLEY (C), MOTOR
823	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.50T
824	3-718-373-01	o	RETAINER, LID
825	3-718-374-01	o	JOINT (F), LEFT & RIGHT
826	3-721-474-01	o	SHAFT, DRIVING
827	3-721-476-01	o	WIRE, FIXED
828	3-721-477-01	s	GEAR (C)
829	3-721-478-01	s	GEAR (D)
830	3-721-479-01	s	BEARING (6)
831	3-721-480-01	s	LID, CASSETTE
832	3-721-483-02	o	CAM, LID OPEN
833	3-721-486-01	s	REFLECTOR
834	8-835-179-01	s	MOTOR, DC MCB215

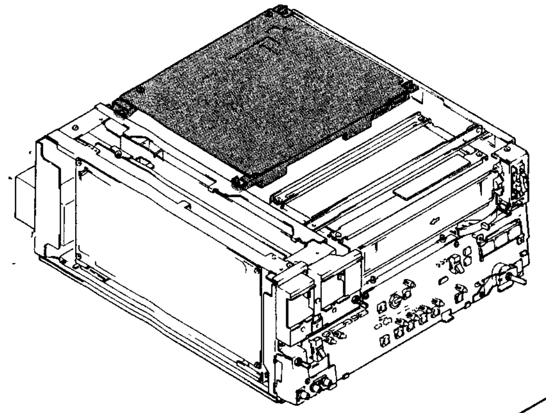
FUNCTION CONTROL

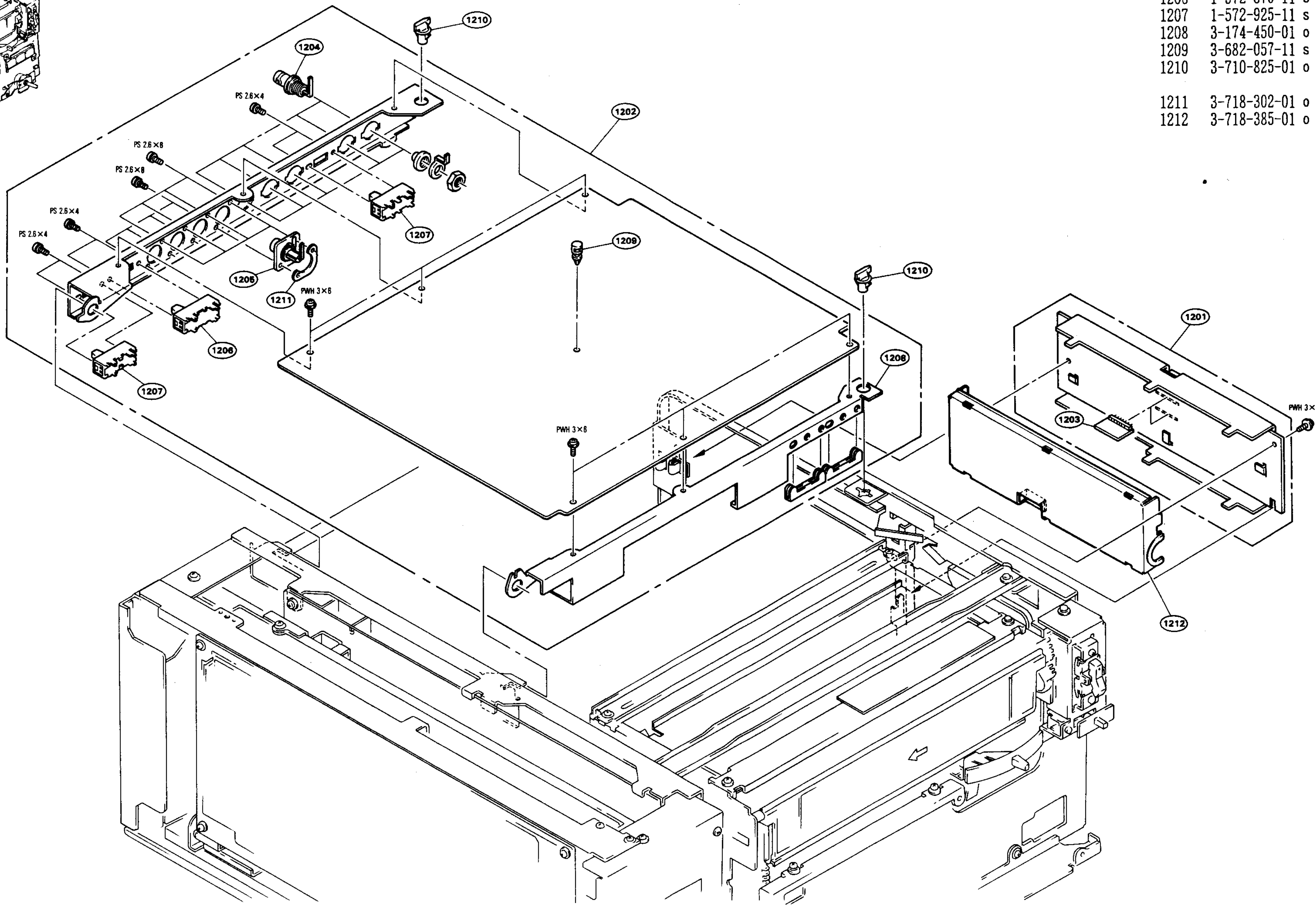



PWH3×6
910
PWH3×6
911
908
905
PWH 3×8
907
907
904
909
909
901
907
913
908
906
PWH 3×8
PWH 3×8
PWH 3×8
912
902
PSW3×8
903

No.	Part No.	SP	Description
901	A-6717-641-A	o	MOUTNED CIRCUIT BOARD, KY-105H
902	1-464-801-12	s	ENCODER, ROTARY
903	1-516-963-00	s	SWITCH, LEVER SLIDE
904	1-516-995-00	s	SWITCH, LEVER SLIDE
905	1-552-271-00	s	SWITCH, SLIDE
906	1-552-539-00	s	SWITCH, KEY BOARD
907	1-553-739-21	s	SWITCH, KEY BOARD
908	⚠1-570-117-11	s	SWITCH, ROCKER (AC POWER)
909	3-672-754-01	o	HOLDER, PC BOARD
910	3-672-765-01	o	BRACKET, C
911	3-688-814-01	s	CAP, SWITCH
912	3-718-325-01	o	BRACKET, ENCORDER
913	3-718-367-01	o	PLATE, SHIELD, KY

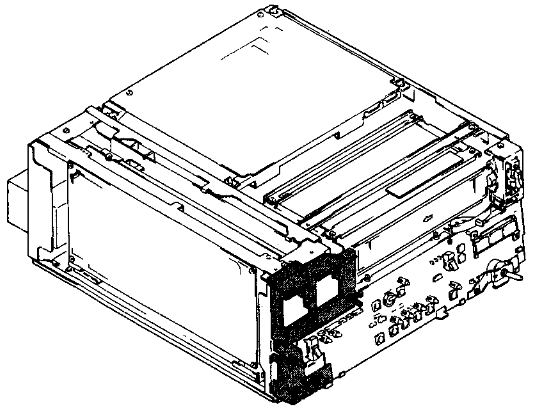
CHASSIS BLOCK (2)

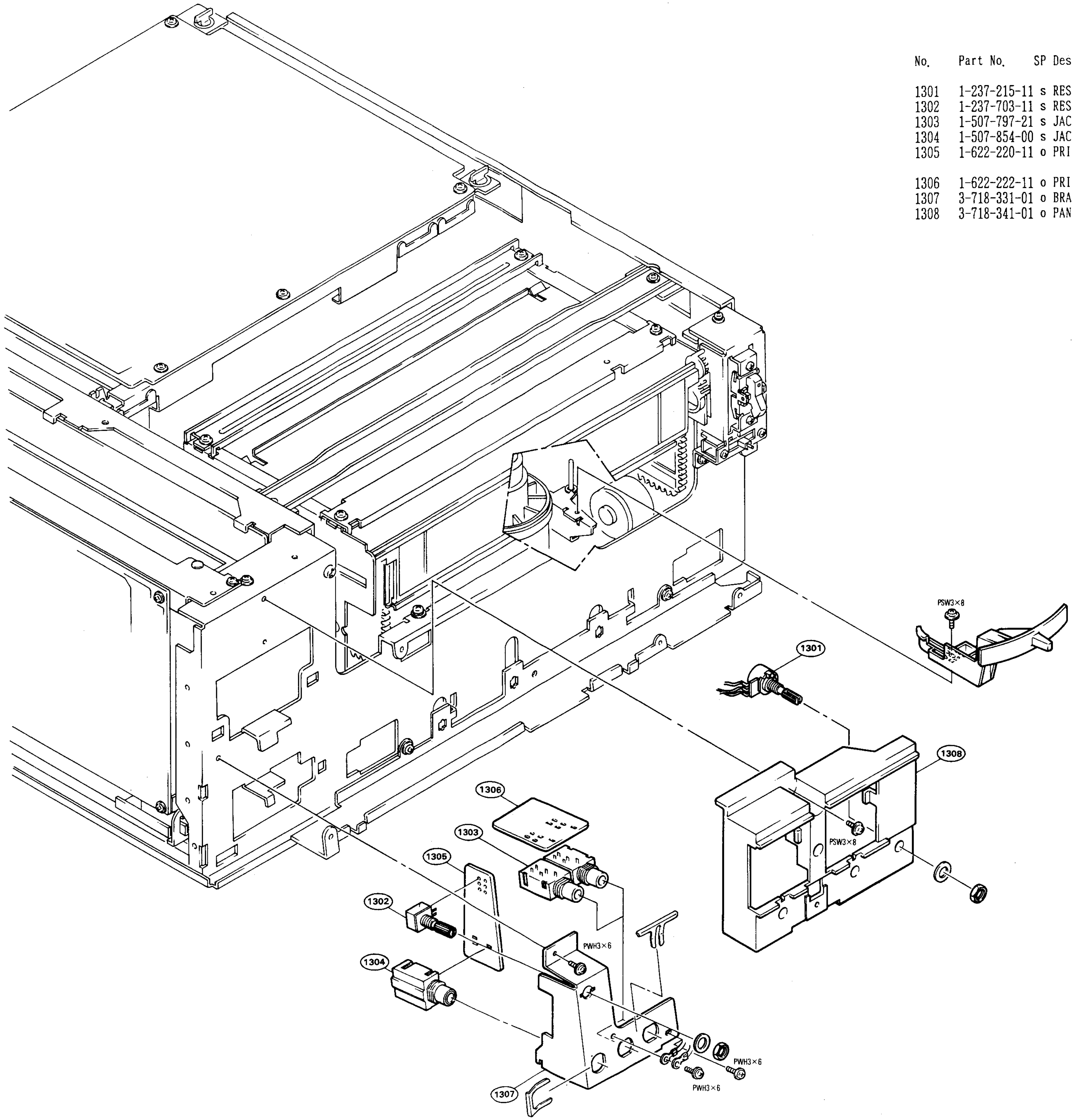



1210
1204
PS 2.6×4
1202
PS 2.6×8
PS 2.6×8
PS 2.6×4
PS 2.6×4
1207
1209
1205
1211
PWH 3×6
1206
1207
1210
1201
1208
PWH 3×6
1203
PWH 3×6
1212

No.	Part No.	SP	Description
1201	A-6711-922-A	o	MOUNTED CIRCUIT BOARD, RP-36A
1202	A-6727-395-A	o	MOUNTED CIRCUIT BOARD, VO-39
1203	A-6754-201-A	o	MOUNTED CIRCUIT BOARD, DUS-383
1204	1-563-354-31	s	CONNECTOR, BNC, FEMALE
1205	1-563-989-11	s	JACK, PIN 1P, FEMALE
1206	1-572-870-11	s	SWITCH, SLIDE
1207	1-572-925-11	s	SWITCH, SLIDE
1208	3-174-450-01	o	BRACKET (H), VL
1209	3-682-057-11	s	SPACER (SMALL)
1210	3-710-825-01	o	FASTENER, PLATE
1211	3-718-302-01	o	BRACKET, PIN JACK
1212	3-718-385-01	o	PLATE (UPPER), SHIELD, RP

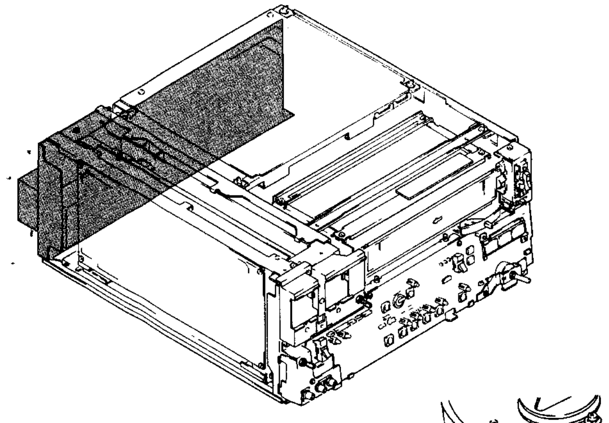
LEVEL CONTROL PANEL



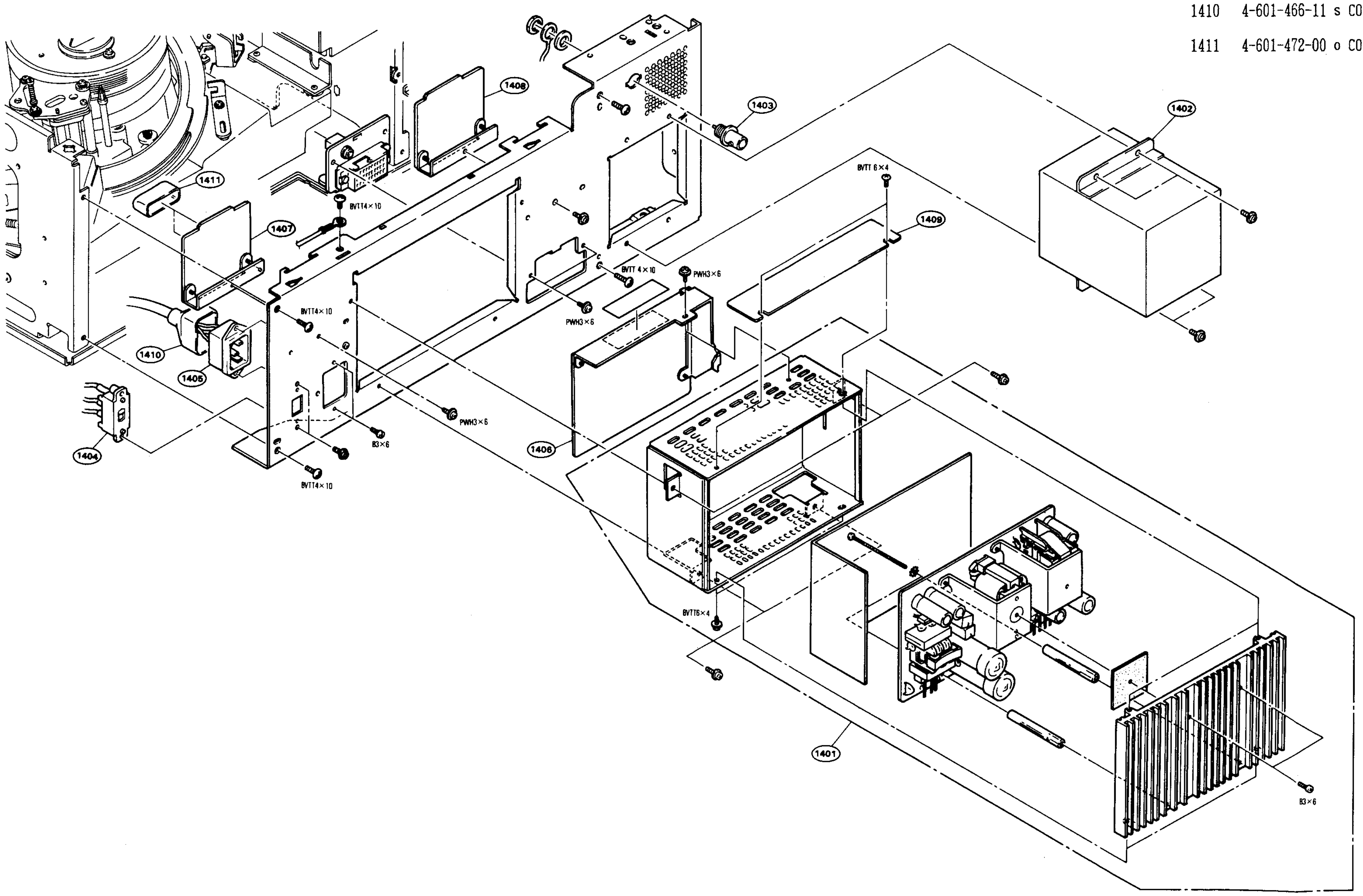

PSW3×8
1301
1308
PSW3×8
1306
1303
1305
1302
PWH3×6
1304
PWH3×6
PWH3×6
1307

No.	Part No.	SP	Description
1301	1-237-215-11	s	RES, VAR, CARBON 100K
1302	1-237-703-11	s	RES, VAR, CARBON 2K/2K
1303	1-507-797-21	s	JACK, 2-PHONE
1304	1-507-854-00	s	JACK, PHONE
1305	1-622-220-11	o	PRINTED CIRCUIT BOARD, HP-30
1306	1-622-222-11	o	PRINTED CIRCUIT BOARD, MC-28
1307	3-718-331-01	o	BRACKET, HEADPHONE
1308	3-718-341-01	o	PANEL, METER

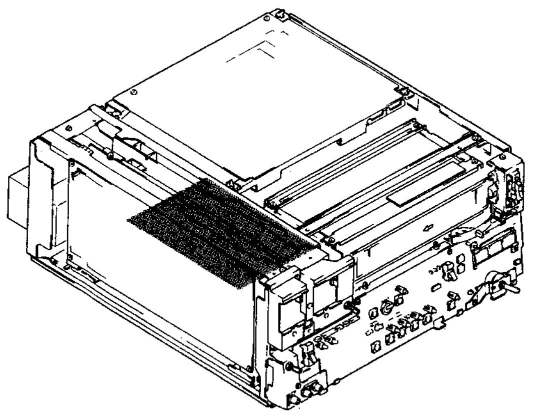
SWITCHING REGULATOR (UR-14/UR-14E)

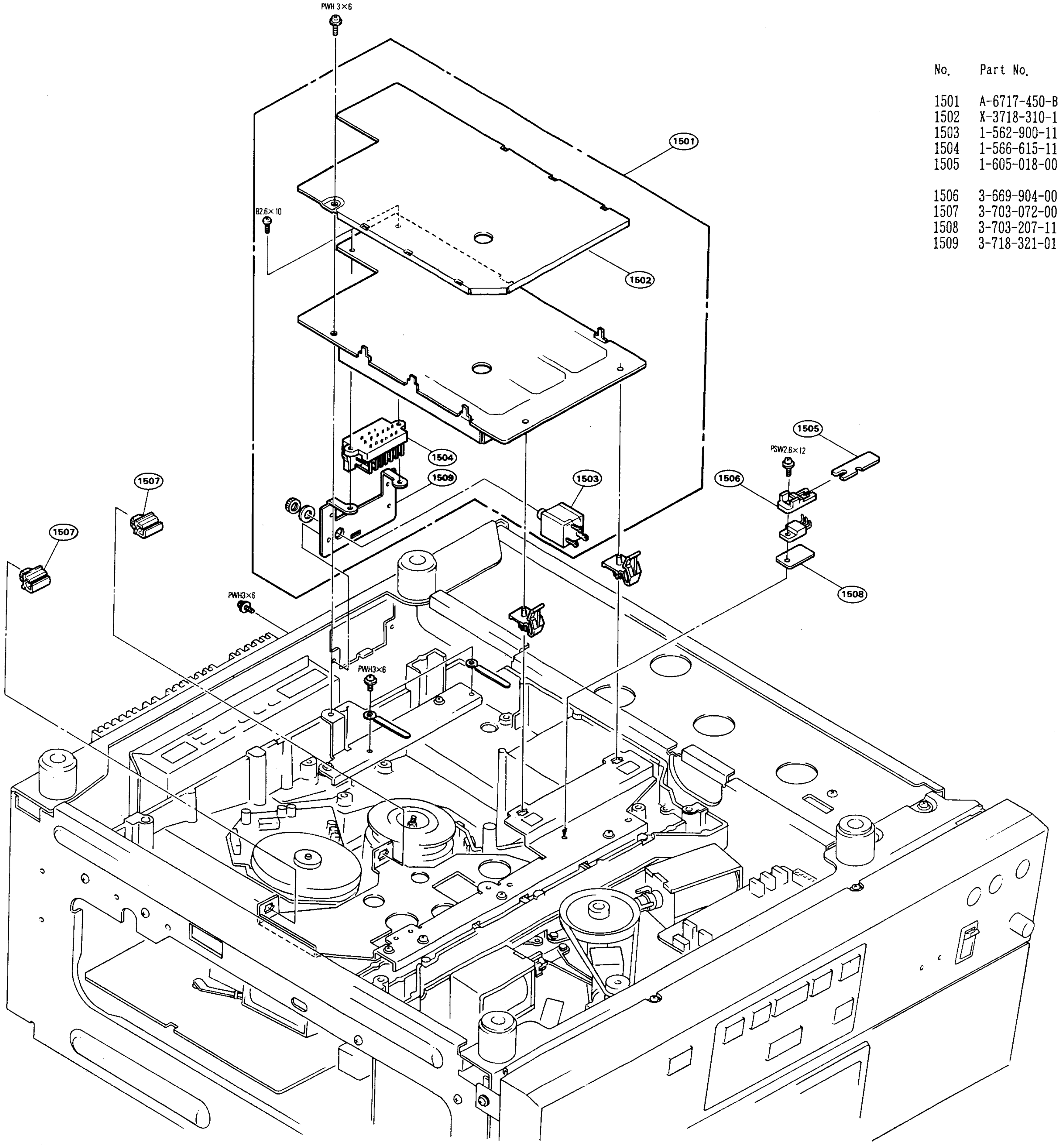


No.	Part No.	SP	Description
1401	⚠1-413-248-11	s	SWITCHING REGULATOR, UR-14 (UC)
	⚠1-413-249-12	s	SWITCHING REGULTOR, UR-14E (EK)
1402	⚠1-450-705-11	s	TRANSFORMER, POWER (UC)
	⚠1-450-706-11	s	TRANSFORMER, POWER (EK)
1403	1-561-781-11	s	CONNECTOR, BNC FEMALE
1404	1-570-173-11	s	SWITCH, VOLTAGE CHANGE
1405	⚠1-580-375-11	s	INLET, AC 3P MALE
1406	1-622-221-11	o	PRINTED CIRCUIT BOARD, DC-31 (UC)
	1-622-221-21	o	PRINTED CIRCUIT BOARD, DC-31A (EK)
1407	1-640-626-11	o	PRINTED CIRCUIT BOARD, AC-125 (UC)
	1-640-627-11	o	PRINTED CIRCUIT BOARD, AC-126 (EK)
1408	1-640-628-11	o	PRINTED CIRCUIRT BOARD, CN-596
1409	3-173-004-02	o	COVER, SW REG
1410	4-601-466-11	s	COVER, 3P INLET
1411	4-601-472-00	o	COVER, FUSE


1408
1403
1402
1411
BVTT4×10
1407
BVTT6×4
1409
BVTT 4×10
PWH3×6
PWH3×6
BVTT4×10
1410
1405
PWH3×6
B3×6
1406
1404
BVTT4×10
BVTT5×4
1401
B3×6

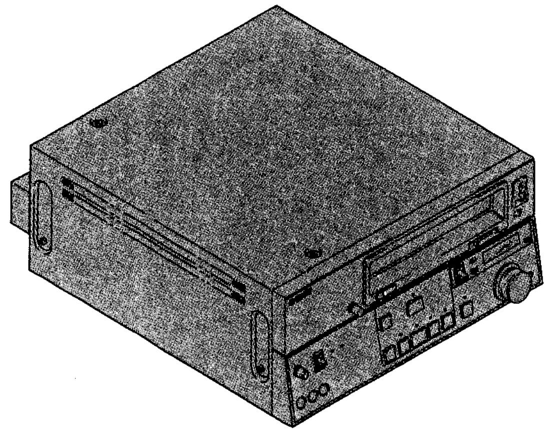
CHASSIS BLOCK (3)

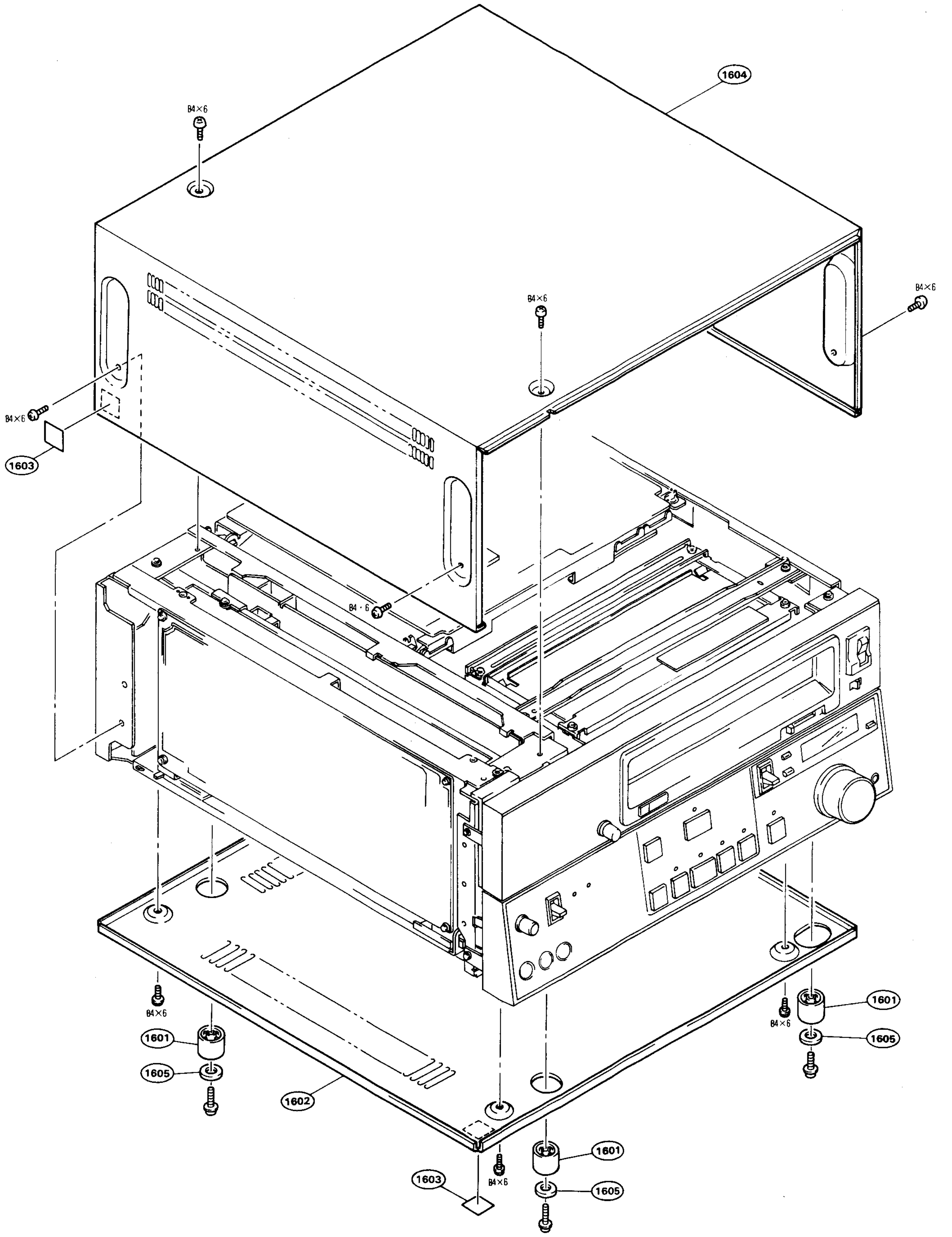



PWH 3×6
1501
B2.6×10
1502
1505
PSW2.6×12
1506
1504
1509
1503
1507
1507
1508
PWH3×6
PWH3×6

No.	Part No.	SP	Description
1501	A-6717-450-B	o	MOUNTED CIRCUIT BOARD, IF-132
1502	X-3718-310-1	o	PLATE BLOCK ASSY, SHIELD, IF
1503	1-562-900-11	s	JACK, MINI
1504	1-566-615-11	s	CONNECTOR, RECTASNGLE 33P FEMALE
1505	1-605-018-00	o	PRINTED CIRCUIT BOARD, PT-9
1506	3-669-904-00	o	HOLDER, PT
1507	3-703-072-00	o	HOLDER, PCB
1508	3-703-207-11	s	INSULATOR, TO-220
1509	3-718-321-01	o	BRACKET, CONNECTOR

ORNAMENTAL PANEL BLOCK





1604
B4×6
B4×6
B4×6
B4×6
1603
B4·6
B4×6
1601
1605
1602
B4×6
1601
1605
1603
B4×6
1601
1605

No.	Part No.	SP	Description
1601	3-668-844-01	s	LEG
1602	3-672-766-01	o	BOARD, BOTTOM
1603	3-703-079-31	o	LABEL, CAUTION (BACK) (EK)
	3-703-848-01	o	LABEL (N), SUB CAUTION (UC)
1604	3-718-347-11	o	CASE, U
1605	9-910-999-47	s	CUSHION, LEG

15-3. ELECTRICAL PARTS LIST

CAPACITOR, MICA, SILVERED

Part No.	SP	Description
1-107-085-00	s	CAP, MICA 100pF 5% 50V
1-107-046-00	s	CAP, MICA 4.7pF+-0.5pF 500V
1-107-049-00	s	CAP, MICA 8.2pF+-0.5pF 500V
1-107-202-00	s	CAP, MICA 10pF 5% 500V
1-107-206-00	s	CAP, MICA 15pF 5% 500V
1-107-210-00	s	CAP, MICA 22pF 5% 500V
1-107-157-00	s	CAP, MICA 27pF 5% 500V
1-107-159-00	s	CAP, MICA 33pF 5% 500V
1-109-627-00	s	CAP, MICA 150pF 2% 500V
1-109-621-00	s	CAP, MICA 220pF 1% 500V

CAPACITOR, ELECTROLYTIC

Part No.	SP	Description
1-124-925-11	s	CAP, ELECT 2.2 20% 100V
1-124-915-11	s	CAP, ELECT 10 20% 63V
1-124-477-11	s	CAP, ELECT 47 20% 25V
1-124-910-11	s	CAP, ELECT 47 20% 50V
1-124-443-00	s	CAP, ELECT 100 20% 10V
1-126-101-11	s	CAP, ELECT 100 20% 16V
1-124-120-11	s	CAP, ELECT 220 20% 25V
1-124-472-11	s	CAP, ELECT 470 20% 10V
1-124-473-11	s	CAP, ELECT 1000 20% 10V

RESISTOR, CARBON

Part No.	SP	Description
1-249-385-11	s	RES, CARBON 2.2 5% 1/6W
1-249-389-11	s	RES, CARBON 4.7 5% 1/6W
1-249-393-11	s	RES, CARBON 10 5% 1/6W
1-249-401-11	s	RES, CARBON 47 5% 1/6W
1-249-405-11	s	RES, CARBON 100 5% 1/6W
1-249-407-11	s	RES, CARBON 150 5% 1/6W
1-249-408-11	s	RES, CARBON 180 5% 1/6W
1-249-409-11	s	RES, CARBON 220 5% 1/6W
1-249-410-11	s	RES, CARBON 270 5% 1/6W
1-249-411-11	s	RES, CARBON 330 5% 1/6W
1-249-413-11	s	RES, CARBON 470 5% 1/6W
1-249-414-11	s	RES, CARBON 560 5% 1/6W
1-249-415-11	s	RES, CARBON 680 5% 1/6W
1-249-416-11	s	RES, CARBON 820 5% 1/6W
1-249-417-11	s	RES, CARBON 1.0k 5% 1/6W
1-249-418-11	s	RES, CARBON 1.2k 5% 1/6W
1-249-419-11	s	RES, CARBON 1.5k 5% 1/6W
1-249-420-11	s	RES, CARBON 1.8k 5% 1/6W
1-249-421-11	s	RES, CARBON 2.2k 5% 1/6W
1-249-422-11	s	RES, CARBON 2.7k 5% 1/6W
1-249-423-11	s	RES, CARBON 3.3k 5% 1/6W
1-249-424-11	s	RES, CARBON 3.9k 5% 1/6W
1-249-425-11	s	RES, CARBON 4.7k 5% 1/6W
1-249-426-11	s	RES, CARBON 5.6k 5% 1/6W
1-249-428-11	s	RES, CARBON 8.2k 5% 1/6W
1-249-429-11	s	RES, CARBON 10k 5% 1/6W
1-249-430-11	s	RES, CARBON 12k 5% 1/6W
1-249-431-11	s	RES, CARBON 15k 5% 1/6W
1-249-432-11	s	RES, CARBON 18k 5% 1/6W
1-249-433-11	s	RES, CARBON 22k 5% 1/6W
1-249-434-11	s	RES, CARBON 27k 5% 1/6W
1-249-435-11	s	RES, CARBON 33k 5% 1/6W
1-249-437-11	s	RES, CARBON 47k 5% 1/6W
1-249-438-11	s	RES, CARBON 56k 5% 1/6W
1-249-439-11	s	RES, CARBON 68k 5% 1/6W
1-249-440-11	s	RES, CARBON 82k 5% 1/6W
1-249-441-11	s	RES, CARBON 100k 5% 1/6W
1-215-471-00	s	RES, METAL 120k 1% 1/6W
1-215-483-00	s	RES, METAL 390k 1% 1/6W
1-215-493-00	s	RES, METAL 1.0M 1% 1/6W

CONNECTOR

Part No.	SP	Description
1-506-468-11	o	RECEPTACLE 3P MALE (STRAIGHT TYPE)
1-506-482-11	o	RECEPTACLE 3P MALE (ANGLE TYPE)
1-506-470-11	o	RECEPTACLE 5P MALE (STRAIGHT TYPE)
1-506-484-11	o	RECEPTACLE 5P MALE (ANGLE TYPE)
1-506-473-11	o	RECEPTACLE 8P MALE (STRAIGHT TYPE)
1-506-487-11	o	RECEPTACLE 8P MALE (ANGLE TYPE)
1-506-475-11	o	RECEPTACLE 10P MALE (STRAIGHT TYPE)
1-506-489-11	o	RECEPTACLE 10P MALE (ANGLE TYPE)
1-506-477-11	o	RECEPTACLE 12P MALE (STRAIGHT TYPE)

INDUCTOR, MICRO

Part No.	SP	Description
1-408-407-00	s	INDUCTOR, MICRO 6.8 5%
1-408-409-00	s	INDUCTOR, MICRO 10 5%
1-408-411-00	s	INDUCTOR, MICRO 15 5%
1-408-417-00	s	INDUCTOR, MICRO 47 5%
1-408-419-00	s	INDUCTOR, MICRO 68 5%

AC-125 BOARD (J/UC)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-640-626-11	o	PRINTED CIRCUIT BOARD, AC-125
C1	⚠1-136-211-00	s	FILM 0.022uF 20% 250V
C2	⚠1-136-185-00	s	FILM 0.22uF 20% 250V
CN1	⚠1-564-419-11	o	HEADER, SPRING 2P
L1	⚠1-421-556-21	s	FILTER, LINE
R1	⚠1-260-135-11	s	CARBON 1M 5% 1/2W

AC-126 BOARD (EK)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-640-627-11	o	PRINTED CIRCUIT BOARD, AC-126
C1	⚠1-136-211-00	s	FILM 0.022uF 20% 250V
C2	⚠1-136-185-00	s	FILM 0.22uF 20% 250V
CN1	⚠1-564-419-11	o	HEADER, SPRING 2P
L1	⚠1-421-556-21	s	FILTER, LINE
R1	⚠1-214-937-00	s	METAL 1M 1% 1/2W

AU-82B(H) BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6713-481-A	o	MOUNTED CIRCUIT BOARD, AU-82B (H)
1pc	1-569-193-11	o	CONTACT, FEMALE
1pc	1-569-198-31	o	HOUSING, 5P
1pc	1-569-199-41	o	HOUSING, 6P
1pc	7-682-903-11	s	SCREW +PWH 3X6
1pc	3-657-153-00	o	HINGE
5pcs	7-682-903-11	s	SCREW +PWH 3X6
C2	1-124-907-11	s	ELECT 10uF 20% 50V
C4	1-124-907-11	s	ELECT 10uF 20% 50V
C5	1-124-903-11	s	ELECT 1uF 20% 50V
C6	1-124-907-11	s	ELECT 10uF 20% 50V
C7	1-126-157-11	s	ELECT 10uF 20% 16V
C8	1-124-903-11	s	ELECT 1uF 20% 50V
C9	1-124-907-11	s	ELECT 10uF 20% 50V
C11	1-124-907-11	s	ELECT 10uF 20% 50V
C14	1-162-199-31	s	CERAMIC 10PF 5% 50V
C15	1-124-907-11	s	ELECT 10uF 20% 50V
C16	1-126-157-11	s	ELECT 10uF 20% 16V
C17	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C19	1-124-903-11	s	ELECT 1uF 20% 50V
C20	1-126-157-11	s	ELECT 10uF 20% 16V
C21	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C23	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C53	1-126-157-11	s	ELECT 10uF 20% 16V
C54	1-124-903-11	s	ELECT 1uF 20% 50V
C57	1-124-907-11	s	ELECT 10uF 20% 50V
C58	1-124-907-11	s	ELECT 10uF 20% 50V
C64	1-124-907-11	s	ELECT 10uF 20% 50V
C67	1-130-497-00	s	MYLAR 0.15uF 5% 50V
C68	1-130-497-00	s	MYLAR 0.15uF 5% 50V
C102	1-162-286-31	s	CERAMIC 220PF 10% 50V
C103	1-124-907-11	s	ELECT 10uF 20% 50V
C106	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C107	1-124-907-11	s	ELECT 10uF 20% 50V
C109	1-130-499-00	s	MYLAR 0.22uF 5% 50V
C110	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C111	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C112	1-124-907-11	s	ELECT 10uF 20% 50V
C113	1-124-907-11	s	ELECT 10uF 20% 50V
C114	1-130-474-00	s	MYLAR 0.0018uF 5% 50V
C152	1-162-290-31	s	CERAMIC 470PF 10% 50V
C153	1-124-907-11	s	ELECT 10uF 20% 50V
C154	1-124-907-11	s	ELECT 10uF 20% 50V
C156	1-124-257-00	s	ELECT 2.2uF 20% 50V
C157	1-130-491-00	s	MYLAR 0.047uF 5% 50V
C158	1-131-343-00	s	TANTALUM 0.22uF 10% 35V
C159	1-131-347-00	s	TANTALUM 1uF 10% 35V
C160	1-130-475-00	s	MYLAR 0.0022uF 5% 50V
C163	1-124-907-11	s	ELECT 10uF 20% 50V
C164	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C201	1-126-157-11	s	ELECT 10uF 20% 16V
C202	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C205	1-124-907-11	s	ELECT 10uF 20% 50V
C206	1-124-907-11	s	ELECT 10uF 20% 50V
C209	1-124-907-11	s	ELECT 10uF 20% 50V
C212	1-162-199-31	s	CERAMIC 10PF 5% 50V
C213	1-124-907-11	s	ELECT 10uF 20% 50V
C214	1-126-157-11	s	ELECT 10uF 20% 16V

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

(AU-82B(H) BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C215	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C217	1-124-903-11	s	ELECT 1uF 20% 50V
C218	1-124-907-11	s	ELECT 10uF 20% 50V
C253	1-126-157-11	s	ELECT 10uF 20% 16V
C254	1-124-903-11	s	ELECT 1uF 20% 50V
C303	1-124-907-11	s	ELECT 10uF 20% 50V
C304	1-162-286-31	s	CERAMIC 220PF 10% 50V
C305	1-130-486-00	s	MYLAR 0.018uF 10% 50V
C306	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C307	1-124-907-11	s	ELECT 10uF 20% 50V
C308	1-162-291-31	s	CERAMIC 560PF 10% 50V
C312	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C313	1-124-907-11	s	ELECT 10uF 20% 50V
C315	1-130-499-00	s	MYLAR 0.22uF 5% 50V
C316	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C317	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C318	1-124-907-11	s	ELECT 10uF 20% 50V
C319	1-124-907-11	s	ELECT 10uF 20% 50V
C320	1-130-474-00	s	MYLAR 0.0018uF 5% 50V
C352	1-162-290-31	s	CERAMIC 470PF 10% 50V
C353	1-124-907-11	s	ELECT 10uF 20% 50V
C354	1-124-907-11	s	ELECT 10uF 20% 50V
C357	1-130-491-00	s	MYLAR 0.047uF 5% 50V
C358	1-131-347-00	s	TANTALUM 1uF 10% 35V
C359	1-130-475-00	s	MYLAR 0.0022uF 5% 50V
C362	1-131-343-00	s	TANTALUM 0.22uF 10% 35V
C363	1-124-907-11	s	ELECT 10uF 20% 50V
C364	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C401	1-126-157-11	s	ELECT 10uF 20% 16V
C402	1-124-907-11	s	ELECT 10uF 20% 50V
C403	1-124-907-11	s	ELECT 10uF 20% 50V
C451	1-126-157-11	s	ELECT 10uF 20% 16V
C452	1-126-157-11	s	ELECT 10uF 20% 16V
C453	1-124-907-11	s	ELECT 10uF 20% 50V
C454	1-124-907-11	s	ELECT 10uF 20% 50V
C502	1-126-233-11	s	ELECT 22uF 20% 50V
C503	1-124-907-11	s	ELECT 10uF 20% 50V
C602	1-124-482-11	s	ELECT 33uF 20% 35V
C608	1-124-907-11	s	ELECT 10uF 20% 50V
C611	1-109-684-00	s	MICA 300PF 1% 500V
C612	1-109-692-00	s	MICA 620PF 5% 500V
C613	1-129-703-00	s	FILM 0.0012uF 10% 630V
C615	1-136-553-11	s	FILM 0.0015uF 10% 630V
CN202	1-506-471-11	s	CONNECTOR, 6P, MALE
CN203	1-506-471-11	s	CONNECTOR, 6P, MALE
CN209	1-506-471-11	s	CONNECTOR, 6P, MALE
CN210	1-506-471-11	s	CONNECTOR, 6P, MALE
CN218	1-506-471-11	s	CONNECTOR, 6P, MALE
CP601	1-464-805-11	s	OSCILLATOR, BIAS
CP602	1-464-805-11	s	OSCILLATOR, BIAS
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D7	8-719-109-93	s	DIODE RD6.2ES-B2
D8	8-719-109-93	s	DIODE RD6.2ES-B2
D9	8-719-911-19	s	DIODE 1SS119

(AU-82B(H) BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D10	8-719-911-19	s	DIODE 1SS119
D51	8-719-911-19	s	DIODE 1SS119
D53	8-719-911-19	s	DIODE 1SS119
D101	8-719-911-19	s	DIODE 1SS119
D102	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119
D104	8-719-109-93	s	DIODE RD6.2ES-B2
D151	8-719-109-93	s	DIODE RD6.2ES-B2
D201	8-719-911-19	s	DIODE 1SS119
D202	8-719-911-19	s	DIODE 1SS119
D204	8-719-109-93	s	DIODE RD6.2ES-B2
D205	8-719-911-19	s	DIODE 1SS119
D206	8-719-911-19	s	DIODE 1SS119
D251	8-719-911-19	s	DIODE 1SS119
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D351	8-719-109-93	s	DIODE RD6.2ES-B2
D401	8-719-109-93	s	DIODE RD6.2ES-B2
D451	8-719-109-93	s	DIODE RD6.2ES-B2
D452	8-719-911-19	s	DIODE 1SS119
D501	8-719-109-93	s	DIODE RD6.2ES-B2
D502	8-719-911-19	s	DIODE 1SS119
D503	8-719-200-02	s	DIODE 10E2
D504	8-719-911-19	s	DIODE 1SS119
D505	8-719-911-19	s	DIODE 1SS119
D506	8-719-911-19	s	DIODE 1SS119
D507	8-719-109-51	s	DIODE RD2.0ES-B2
D601	8-719-109-66	s	DIODE RD3.3ES-B2
D602	8-719-200-02	s	DIODE 10E2
D603	8-719-200-02	s	DIODE 10E2
IC1	8-759-982-02	s	IC RC4562DD
IC2	8-759-140-53	s	IC UPD4053BC
IC3	8-759-982-02	s	IC RC4562DD
IC51	8-759-802-46	s	IC LA4550
IC101	8-759-981-57	s	IC RC2043DD
IC102	8-759-982-02	s	IC RC4562DD
IC151	8-759-981-90	s	IC NJM4558D-D
IC202	8-759-140-53	s	IC UPD4053BC
IC351	8-759-981-90	s	IC NJM4558D-D
IC401	8-759-140-11	s	IC MC14011BCP
L1	1-407-519-00	s	INDUCTOR 8UH
L201	1-407-519-00	s	INDUCTOR 8UH
LV101	1-459-434-00	s	COIL, VAR 22mH
LV151	1-459-434-00	s	COIL, VAR 22mH
LV152	1-459-434-00	s	COIL, VAR 22mH
LV301	1-459-434-00	s	COIL, VAR 22mH
LV302	1-459-434-00	s	COIL, VAR 22mH
LV351	1-459-434-00	s	COIL, VAR 22mH
LV352	1-459-434-00	s	COIL, VAR 22mH
LV601	1-407-283-00	s	INDUCTOR 0.68mH
LV602	1-410-859-11	s	COIL, VAR 240uH
Q1	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q2	8-729-115-10	s	TRANSISTOR 2SK105A-10
Q3	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q4	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q5	8-729-119-78	s	TRANSISTOR 2SC2785-HFE

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

(AU-82B(H) BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q6	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q7	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q8	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q51	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q52	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q53	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q54	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q55	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q101	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q102	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q103	8-729-119-76	s	TRANSISTOR 2SA1115P
Q105	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q106	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q151	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q154	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q201	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q202	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q203	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q204	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q206	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q207	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q208	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q251	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q252	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q301	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q302	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q303	8-729-119-76	s	TRANSISTOR 2SA1115P
Q304	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q305	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q306	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q351	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q354	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q401	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q402	8-729-119-76	s	TRANSISTOR 2SA1115P
Q403	8-729-119-76	s	TRANSISTOR 2SA1115P
Q451	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q452	8-729-119-76	s	TRANSISTOR 2SA1115P
Q453	8-729-119-76	s	TRANSISTOR 2SA1115P
Q501	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q502	8-729-140-93	s	TRANSISTOR 2SB733-34
Q503	8-729-119-76	s	TRANSISTOR 2SA1115P
Q601	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q602	8-729-119-76	s	TRANSISTOR 2SA1115P
Q603	8-729-140-98	s	TRANSISTOR 2SD773-3
Q606	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q607	8-729-119-76	s	TRANSISTOR 2SA1115P
Q608	8-729-140-98	s	TRANSISTOR 2SD773-3
R7	1-247-903-00	s	CARBON 1M 5% 1/4W
R8	1-247-883-00	s	CARBON 150K 5% 1/4W
R19	1-247-887-00	s	CARBON 220K 5% 1/4W
R27	1-247-885-00	s	CARBON 180K 5% 1/4W
R40	1-247-891-00	s	CARBON 330K 5% 1/4W
R117	1-247-887-00	s	CARBON 220K 5% 1/4W
R124	1-247-881-00	s	CARBON 120K 5% 1/4W
R126	1-247-881-00	s	CARBON 120K 5% 1/4W
R204	1-247-891-00	s	CARBON 330K 5% 1/4W
R216	1-247-887-00	s	CARBON 220K 5% 1/4W
R224	1-247-885-00	s	CARBON 180K 5% 1/4W
R236	1-247-883-00	s	CARBON 150K 5% 1/4W
R316	1-247-903-00	s	CARBON 1M 5% 1/4W
R321	1-247-887-00	s	CARBON 220K 5% 1/4W
R327	1-247-881-00	s	CARBON 120K 5% 1/4W
R329	1-247-881-00	s	CARBON 120K 5% 1/4W
R507	1-247-885-00	s	CARBON 180K 5% 1/4W
RV1	1-228-996-00	s	RES, ADJ, METAL 47K
RV51	1-228-990-00	s	RES, ADJ, METAL 1K
RV101	1-228-994-00	s	RES, ADJ, METAL 10K
RV102	1-228-994-00	s	RES, ADJ, METAL 10K
RV103	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV110	1-228-998-00	s	RES, ADJ, METAL 220K
RV151	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV152	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV201	1-228-996-00	s	RES, ADJ, METAL 47K
RV251	1-228-990-00	s	RES, ADJ, METAL 1K
RV301	1-228-994-00	s	RES, ADJ, METAL 10K
RV302	1-228-994-00	s	RES, ADJ, METAL 10K
RV303	1-228-994-00	s	RES, ADJ, METAL 10K
RV304	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV310	1-228-998-00	s	RES, ADJ, METAL 220K
RV351	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV352	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV601	1-228-998-00	s	RES, ADJ, METAL 220K
RV602	1-228-998-00	s	RES, ADJ, METAL 220K
RV604	1-228-994-00	s	RES, ADJ, METAL 10K
RY601	1-515-614-11	s	RELAY

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

CC-36 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-627-572-12	o	PRINTED CIRCUIT BOARD, CC-36
IC1	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53
R1	1-247-705-11	s	CARBON 270K 5% 1/4W
R2	1-247-717-11	s	CARBON 2.2K 5% 1/4W
R3	1-247-705-11	s	CARBON 270K 5% 1/4W
R4	1-247-717-11	s	CARBON 2.2K 5% 1/4W

CC-37 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-627-573-13	o	PRINTED CIRCUIT BOARD, CC-37
IC2	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53

CN-596 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-640-628-11	o	PRINTED CIRCUIT BOARD, CN-596
CN1	⚠1-564-419-11	o	HEADER, SPRING 2P
CN2	⚠1-564-421-11	o	HEADER, SPRING 4P
CN3	⚠1-564-420-11	o	HEADER, SPRING 3P

DC-31 BOARD (J/UC)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-221-11	o	PRINTED CIRCUIT BOARD, DC-31
C1	1-124-479-11	s	ELECT 330uF 20% 25V
C2	1-162-306-11	s	CERAMIC 0.01uF 20% 16V
IC1	8-759-938-15	s	IC BA178M05

DC-31A BOARD (EK)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-221-21	o	PRINTED CIRCUIT BOARD, DC-31A
C1	1-124-479-11	s	ELECT 330uF 20% 25V
C2	1-162-306-11	s	CERAMIC 0.01uF 20% 16V
IC1	8-759-938-15	s	IC BA178M05

DUS-92 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-615-924-11	o	PRINTED CIRCUIT BOARD, DUS-92
H1003	8-825-578-22	s	HEAD, ACE

DUS-147 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-261-11	o	PRINTED CIRCUIT BOARD, DUS-147

DUS-383 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-315-11	o	PRINTED CIRCUIT BOARD, DUS-383
CN1	1-568-604-11	o	PIN, SIL 7P
IC1	8-729-801-46	s	IC 2SC3064-F

DUS-408 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-640-629-11	o	PRINTED CIRCUIT BOARD, DUS-408
CN1	1-506-485-11	s	CONNECTOR, 6P, MALE
S1	1-554-399-00	s	SWITCH, TOGGLE
VR1	1-230-720-11	s	RES, ADJ CARBON 4.7K
VR2	1-230-720-11	s	RES, ADJ CARBON 4.7K

DUS-506 BOARD

This Board is installed on the following VO-39 Board.
(J) Serial No. 10001 through 10040
(UC) Serial No. 10001 through 10060
(EK) Serial No. 10001 through 10040

Ref. No. or Q'ty	Part No.	SP	Description
C1	1-161-494-00	s	CERAMIC 0.022uF 25V
C3	1-130-483-00	s	MYLAR 0.01uF 5% 50V
IC1	8-759-031-92	s	IC MC14528BCP
Q1	8-729-117-53	s	TRANSISTOR 2SA1175-H
Q2	8-729-117-53	s	TRANSISTOR 2SA1175-H
Q3	8-729-900-36	s	TRANSISTOR DTC124ES
R1	1-215-397-00	s	METAL 100 1% 1/6W
R2	1-215-429-00	s	METAL 2.2K 1% 1/6W
R3	1-215-445-00	s	METAL 10K 1% 1/6W
R4	1-215-425-00	s	METAL 1.5K 1% 1/6W
R5	1-215-441-00	s	METAL 6.8K 1% 1/6W
R6	1-215-481-00	s	METAL 330K 1% 1/6W

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

EC-28 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-223-11	o	PRINTED CIRCUIT BOARD, EC-28
H1002	8-825-513-20	s	CTL ERASE (EPP170-58)

HP-30 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-220-11	o	PRINTED CIRCUIT BOARD, HP-30
CN1013	1-507-854-00	s	JACK, LARGE TYPE
RV1001	1-237-703-11	s	RES, VAR CARBON 2K/2K

IF-132 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6717-450-B	o	MOUNTED CIRCUIT BOARD, IF-132
C2	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C4	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C5	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C6	1-162-290-31	s	CERAMIC 470PF 10% 50V
C7	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C8	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C9	1-162-290-31	s	CERAMIC 470PF 10% 50V
C11	1-130-478-00	s	MYLAR 0.0039uF 5% 50V
C12	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C13	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C14	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C15	1-162-211-31	s	CERAMIC 33PF 5% 50V
C16	1-162-211-31	s	CERAMIC 33PF 5% 50V
C17	1-161-043-00	s	CERAMIC 0.0022uF 10% 50V
C18	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C19	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C20	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C21	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C22	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C23	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C24	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C26	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
CN556	1-506-486-11	s	CONNECTOR, 7P, MALE
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D7	8-719-911-19	s	DIODE 1SS119
D8	8-719-911-19	s	DIODE 1SS119
D9	8-719-911-19	s	DIODE 1SS119
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-911-19	s	DIODE 1SS119
D12	8-719-911-19	s	DIODE 1SS119
D13	8-719-911-19	s	DIODE 1SS119
D14	8-719-911-19	s	DIODE 1SS119
D15	8-719-911-19	s	DIODE 1SS119
D16	8-719-911-19	s	DIODE 1SS119
D19	8-719-911-19	s	DIODE 1SS119
D20	8-719-911-19	s	DIODE 1SS119
D21	8-719-911-19	s	DIODE 1SS119
D23	8-719-911-19	s	DIODE 1SS119
D24	8-719-911-19	s	DIODE 1SS119
D25	8-719-911-19	s	DIODE 1SS119
D26	8-719-911-19	s	DIODE 1SS119
IC1	8-759-600-61	s	IC M54529AP
IC2	8-759-600-61	s	IC M54529AP
IC3	8-759-600-61	s	IC M54529AP
IC4	8-759-600-61	s	IC M54529AP
IC5	8-759-045-38	s	IC MC14538BCP
IC6	8-759-040-70	s	IC MC14070BCP
IC7	8-759-240-69	s	IC TC4069UBP
IC8	8-759-971-32	s	IC MB88525-189M
Q1	8-729-900-89	s	TRANSISTOR DTC144ES

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

(IF-132 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q2	8-729-900-89	s	TRANSISTOR DTC144ES
Q3	8-729-900-89	s	TRANSISTOR DTC144ES
Q4	8-729-900-89	s	TRANSISTOR DTC144ES
Q5	8-729-900-89	s	TRANSISTOR DTC144ES
R10	1-247-890-11	s	CARBON 300K 5% 1/4W
R11	1-247-895-00	s	CARBON 470K 5% 1/4W
R21	1-247-890-11	s	CARBON 300K 5% 1/4W
R37	1-247-887-00	s	CARBON 220K 5% 1/4W
R38	1-215-445-00	s	METAL 10K 1% 1/6W
R73	1-247-887-00	s	CARBON 220K 5% 1/4W
X1	1-567-143-00	s	RESONATOR, CERAMIC 6.00MHz

KY-105H BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6717-641-A	o	MOUNTED CIRCUIT BOARD, KY-105H
C1	1-162-211-31	s	CERAMIC 33PF 5% 50V
C2	1-162-211-31	s	CERAMIC 33PF 5% 50V
C3	1-124-126-00	s	ELECT 47uF 20% 25V
C4	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C7	1-162-286-31	s	CERAMIC 220PF 10% 50V
C8	1-162-286-31	s	CERAMIC 220PF 10% 50V
C9	1-162-286-31	s	CERAMIC 220PF 10% 50V
C10	1-162-286-31	s	CERAMIC 220PF 10% 50V
C11	1-162-286-31	s	CERAMIC 220PF 10% 50V
C12	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C13	1-125-444-11	s	DOUBLE LAYERS 0.1FARAD 5.5V
CN708	1-564-005-11	s	CONNECTOR, 6P, MALE1
CN711	1-506-471-11	s	CONNECTOR, 6P, MALE
CP1	1-560-914-00	s	PIN, SHORTING
D2	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D7	8-719-911-19	s	DIODE 1SS119
D8	8-719-802-11	s	LED TLUG154, GRN
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-802-11	s	LED TLUG154, GRN
D14	8-719-911-19	s	DIODE 1SS119
D15	8-719-911-19	s	DIODE 1SS119
D18	8-719-802-11	s	LED TLUG154, GRN
D19	8-719-802-11	s	LED TLUG154, GRN
D20	8-719-911-19	s	DIODE 1SS119
D21	8-719-802-11	s	LED TLUG154, GRN
D22	8-719-911-19	s	DIODE 1SS119
D23	8-719-911-19	s	DIODE 1SS119
D24	8-719-911-19	s	DIODE 1SS119
D25	8-719-802-11	s	LED TLUG154, GRN
D26	8-719-911-19	s	DIODE 1SS119
D29	8-719-802-11	s	LED TLUG154, GRN
D30	8-719-802-11	s	LED TLUG154, GRN
D34	8-719-911-19	s	DIODE 1SS119
IC1	8-759-645-17	s	IC M54517P
IC2	8-759-970-95	s	IC MB88525-191M
IC3	8-759-000-43	s	IC MC14042BCP
L1	1-407-488-00	s	INDUCTOR 470uH
ND701	1-466-611-11	s	DISPLAY UNIT
Q1	8-729-900-65	s	TRANSISTOR DTA144ES
Q2	8-729-900-65	s	TRANSISTOR DTA144ES
Q3	8-729-900-65	s	TRANSISTOR DTA144ES
Q4	8-729-900-65	s	TRANSISTOR DTA144ES
Q5	8-729-900-65	s	TRANSISTOR DTA144ES
Q6	8-729-900-65	s	TRANSISTOR DTA144ES
Q7	8-729-119-76	s	TRANSISTOR 2SA1115P
Q8	8-729-119-76	s	TRANSISTOR 2SA1115P
Q9	8-729-119-76	s	TRANSISTOR 2SA1115P
Q10	8-729-119-76	s	TRANSISTOR 2SA1115P
Q11	8-729-119-76	s	TRANSISTOR 2SA1115P
Q13	8-729-119-76	s	TRANSISTOR 2SA1115P
Q14	8-729-119-76	s	TRANSISTOR 2SA1115P

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

(KY-105H BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q16	8-729-900-65	s	TRANSISTOR DTA144ES
Q18	8-729-900-65	s	TRANSISTOR DTA144ES
Q19	8-729-900-65	s	TRANSISTOR DTA144ES
Q20	8-729-900-65	s	TRANSISTOR DTA144ES
Q21	8-729-900-65	s	TRANSISTOR DTA144ES
Q22	8-729-900-65	s	TRANSISTOR DTA144ES
Q23	8-729-900-65	s	TRANSISTOR DTA144ES
Q30	8-729-900-36	s	TRANSISTOR DTC124ES
Q40	8-729-107-84	s	TRANSISTOR 2SC3623A-L
Q41	8-729-107-84	s	TRANSISTOR 2SC3623A-L
R75	1-260-084-11	s	CARBON 56 5% 1/2W
S2	1-553-739-21	s	SWITCH, TACTILE
S4	1-553-739-21	s	SWITCH, TACTILE
S5	1-553-739-21	s	SWITCH, TACTILE
S6	1-552-539-00	s	SWITCH, TACTILE
S7	1-516-995-00	s	SWITCH, LEVER SLIDE
S8	1-552-539-00	s	SWITCH, TACTILE
S10	1-552-539-00	s	SWITCH, TACTILE
S11	1-552-539-00	s	SWITCH, TACTILE
S12	1-552-539-00	s	SWITCH, TACTILE
S13	1-552-539-00	s	SWITCH, TACTILE
S14	1-552-539-00	s	SWITCH, TACTILE
S15	1-552-539-00	s	SWITCH, TACTILE
S18	1-516-963-00	s	SWITCH, LEVER SLIDE
TP1	3-657-703-01	o	TERMINAL, TP
X1	1-567-143-00	s	RESONATOR, CERAMIC 6.00MHz

LM-13 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-618-600-11	o	PRINTED CIRCUIT BOARD, LM-13
C1	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C2	1-130-471-00	s	MYLAR 0.001uF 5% 50V
M1003	1-541-376-11	s	MOTOR, DC DNR-4700A

LP-41 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-623-101-11	o	PRINTED CIRCUIT BOARD, LP-41
D1	8-719-800-89	s	LED TLY255, YEL
D2	8-719-800-89	s	LED TLY255, YEL
D3	8-719-800-89	s	LED TLY255, YEL
R1	1-247-717-11	s	CARBON 2.2K 5% 1/4W
R2	1-247-706-11	s	CARBON 330 5% 1/4W
R3	1-247-705-11	s	CARBON 270K 5% 1/4W

MC-28 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-222-11	o	PRINTED CIRCUIT BOARD, MC-28
C1	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C2	1-161-379-00	s	CERAMIC 0.01uF 20% 25V

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

PD-40 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6725-569-A	o	MOUNTED CIRCUIT BOARD, PD-40
C1	1-124-927-11	s	ELECT 4.7uF 20% 100V
C2	1-124-927-11	s	ELECT 4.7uF 20% 100V
C3	1-124-927-11	s	ELECT 4.7uF 20% 100V
C4	1-124-927-11	s	ELECT 4.7uF 20% 100V
D1	8-719-200-02	s	DIODE 10E2
D2	8-719-200-02	s	DIODE 10E2
D3	8-719-200-02	s	DIODE 10E2
D4	8-719-200-02	s	DIODE 10E2
D5	8-719-200-02	s	DIODE 10E2
D6	8-719-200-02	s	DIODE 10E2
D7	8-719-200-02	s	DIODE 10E2
D8	8-719-200-02	s	DIODE 10E2
D9	8-719-200-02	s	DIODE 10E2
D10	8-719-200-02	s	DIODE 10E2
D11	8-719-200-02	s	DIODE 10E2
D12	8-719-200-02	s	DIODE 10E2
D13	8-719-200-02	s	DIODE 10E2
Q1	8-729-811-11	s	TRANSISTOR 2SD1111
Q2	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q3	8-729-889-40	s	TRANSISTOR 2SD894
Q4	8-729-811-11	s	TRANSISTOR 2SD1111
Q5	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q6	8-729-889-40	s	TRANSISTOR 2SD894
Q7	8-729-199-82	s	TRANSISTOR 2SD998
Q8	8-729-811-11	s	TRANSISTOR 2SD1111
Q9	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q10	8-729-199-82	s	TRANSISTOR 2SD998
Q11	8-729-811-11	s	TRANSISTOR 2SD1111
Q12	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q13	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q14	8-729-199-82	s	TRANSISTOR 2SD998
R6	⚠1-532-685-00	s	LINK, IC 0.6A
R12	⚠1-532-685-00	s	LINK, IC 0.6A
R19	⚠1-532-685-00	s	LINK, IC 0.6A
R25	⚠1-532-685-00	s	LINK, IC 0.6A
R30	⚠1-532-685-00	s	LINK, IC 0.6A

PD-41 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6725-570-A	o	MOUNTED CIRCUIT BOARD, PD-41
C1	1-124-927-11	s	ELECT 4.7uF 20% 100V
C2	1-124-927-11	s	ELECT 4.7uF 20% 100V
C3	1-162-306-11	s	CERAMIC 0.01uF 20% 16VW
D1	8-719-200-02	s	DIODE 10E2
D2	8-719-200-02	s	DIODE 10E2
D3	8-719-200-02	s	DIODE 10E2
D4	8-719-200-02	s	DIODE 10E2
D5	8-719-200-02	s	DIODE 10E2
D6	8-719-200-02	s	DIODE 10E2
Q1	8-729-811-11	s	TRANSISTOR 2SD1111
Q2	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q3	8-729-889-40	s	TRANSISTOR 2SD894
Q4	8-729-811-11	s	TRANSISTOR 2SD1111
Q5	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q6	8-729-889-40	s	TRANSISTOR 2SD894
R6	⚠1-532-685-00	s	LINK, IC 0.6A
R12	⚠1-532-685-00	s	LINK, IC 0.6A

PH-5 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-603-737-00	o	PRINTED CIRCUIT BOARD, PH-5
D1	8-719-905-58	s	DIODE EQA02-06F1
Q1	8-729-810-22	s	TRANSISTOR SPS102-B

PT-9 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-605-018-00	o	PRINTED CIRCUIT BOARD, PT-9
Q1	8-729-377-13	s	TRANSISTOR 2SA771-Y

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

PTC-30 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-260-11	o	PRINTED CIRCUIT BOARD, PTC-30
IC1	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52
IC2	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52

PTC-33 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-258-11	o	PRINTED CIRCUIT BOARD, PTC-33
IC1	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53
IC2	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53

PTC-34 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-259-11	o	PRINTED CIRCUIT BOARD, PTC-34
IC1	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53

PTC-35 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-622-218-11	o	PRINTED CIRCUIT BOARD, PTC-35
IC1A	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53
IC1B	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53

RM-39 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-618-873-11	o	PRINTED CIRCUIT BOARD, RM-39
C1	1-101-006-00	s	CERAMIC 0.047 50V
C2	1-101-006-00	s	CERAMIC 0.047 50V
L1	1-410-623-11	s	INDUCTOR 4.7uH
L2	1-410-623-11	s	INDUCTOR 4.7uH
M1006	8-835-409-01	s	MOTOR, DC FN30-T253N1E

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

RP-36A BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6711-922-A	o	MOUNTED CIRCUIT BOARD, RP-36A
C2	1-124-589-11	s	ELECT 47uF 20% 16V
C3	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C4	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C5	1-130-491-00	s	MYLAR 0.047uF 5% 50V
C6	1-130-491-00	s	MYLAR 0.047uF 5% 50V
C7	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C8	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C9	1-124-589-11	s	ELECT 47uF 20% 16V
C10	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C11	1-124-589-11	s	ELECT 47uF 20% 16V
C12	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C13	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C14	1-126-160-11	s	ELECT 1uF 20% 50V
C15	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C16	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C17	1-124-589-11	s	ELECT 47uF 20% 16V
C19	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C20	1-126-160-11	s	ELECT 1uF 20% 50V
C21	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
CN121	1-506-471-11	s	CONNECTOR, 6P, MALE
CN123	1-506-471-11	s	CONNECTOR, 6P, MALE
CN124	1-506-471-11	s	CONNECTOR, 6P, MALE
CP1	1-560-914-00	s	PIN, SHORTING
CP2	1-560-914-00	s	PIN, SHORTING
CS1	1-561-724-00	o	PLUG, SHORTING
CS2	1-561-724-00	o	PLUG, SHORTING
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-109-60	s	DIODE RD2.7ES-B2
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
IC1	8-743-731-00	s	IC BX373A
IC3	8-741-126-50	s	IC BX1265
IC4	8-759-240-09	s	IC TC4009UBP
IC6	8-741-126-50	s	IC BX1265
L1	1-410-482-31	s	INDUCTOR 100uH
L2	1-408-399-00	s	INDUCTOR 1.5 5%
L3	1-410-482-31	s	INDUCTOR 100uH
L4	1-410-482-31	s	INDUCTOR 100uH
Q1	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q2	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q3	8-729-281-53	s	TRANSISTOR 2SC1815-GR
Q4	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q5	8-729-281-53	s	TRANSISTOR 2SC1815-GR
Q11	8-729-281-53	s	TRANSISTOR 2SC1815-GR
R2	1-249-404-00	s	CARBON 82 5% 1/4W
R3	1-215-425-00	s	METAL 1.5K 1% 1/6W
R4	1-215-425-00	s	METAL 1.5K 1% 1/6W
R5	1-215-425-00	s	METAL 1.5K 1% 1/6W
R6	1-215-414-00	s	METAL 510 1% 1/6W
R7	1-215-414-00	s	METAL 510 1% 1/6W
R9	1-247-804-11	s	CARBON 75 5% 1/4W
R10	1-215-380-00	s	METAL 20 1% 1/6W
R11	1-215-380-00	s	METAL 20 1% 1/6W
R15	1-215-460-00	s	METAL 43K 1% 1/6W

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

(RP-36A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R18	1-215-380-00	s	METAL 20 1% 1/6W
R19	1-215-380-00	s	METAL 20 1% 1/6W
R24	1-215-462-00	s	METAL 51K 1% 1/6W
RV1	1-228-990-00	s	RES, ADJ, METAL 1K
RV2	1-228-990-00	s	RES, ADJ, METAL 1K
RV3	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV4	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV5	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV6	1-228-991-00	s	RES, ADJ, METAL 2.2K
T1	1-426-017-00	s	TRANSFORMER, AF
T2	1-427-472-00	s	TRANSFORMER, OUTPUT
T3	1-426-319-11	s	TRANSFORMER, PB RF
T4	1-427-472-00	s	TRANSFORMER, OUTPUT
T5	1-426-319-11	s	TRANSFORMER, PB RF

SE-46 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-618-599-11	o	PRINTED CIRCUIT BOARD, SE-46
PC1	1-806-232-21	s	DETECTOR MB-110S.N

SV-93H BOARD

This Board (Part No. 1-622-386-91) is used for the following unit.
(J) Serial No. 10001 through 10040
(UC) Serial No. 10001 through 10060
(EK) Serial No. 10001 through 10040

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6715-458-A	o	MOUNTED CIRCUIT BOARD, SV-93H
C1	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C2	1-130-489-00	s	MYLAR 0.033uF 5% 50V
C3	1-124-903-11	s	ELECT 1uF 20% 50V
C4	1-124-034-51	s	ELECT 33uF 20% 16V
C5	1-130-491-00	s	MYLAR 0.047uF 5% 50V
C6	1-161-377-00	s	CERAMIC 0.0047uF 20% 50V
C7	1-161-374-11	s	CERAMIC 0.0015uF 20% 50V
C8	1-130-493-00	s	MYLAR 0.068uF 5% 50V
C9	1-124-257-00	s	ELECT 2.2uF 20% 50V
C10	1-131-352-00	s	TANTALUM 6.8uF 10% 35V
C11	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C12	1-161-329-00	s	CERAMIC 0.0068uF 30% 16V
C13	1-124-034-51	s	ELECT 33uF 20% 16V
C14	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C16	1-124-480-11	s	ELECT 470uF 20% 25V
C17	1-161-057-00	s	CERAMIC 0.033uF 10% 50V
C18	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C19	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C102	1-130-489-00	s	MYLAR 0.033uF 5% 50V
C103	1-130-489-00	s	MYLAR 0.033uF 5% 50V
C104	1-162-215-31	s	CERAMIC 47PF 5% 50V
C105	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C106	1-161-047-00	s	CERAMIC 0.0047uF 10% 25V
C107	1-124-477-11	s	ELECT 47uF 20% 25V
C108	1-124-907-11	s	ELECT 10uF 20% 50V
C111	1-130-474-00	s	MYLAR 0.0018uF 5% 50V
C112	1-130-474-00	s	MYLAR 0.0018uF 5% 50V
C113	1-130-492-11	s	MYLAR 0.056uF 5% 50V
C114	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C115	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C116	1-162-286-31	s	CERAMIC 220PF 10% 50V
C117	1-130-490-11	s	MYLAR 0.039uF 5% 50V
C118	1-130-478-00	s	MYLAR 0.0039uF 5% 50V
C119	1-130-497-00	s	MYLAR 0.15uF 5% 50V
C120	1-162-288-31	s	CERAMIC 330PF 10% 50V
C201	1-130-486-00	s	MYLAR 0.018uF 10% 50V
C203	1-162-211-31	s	CERAMIC 33PF 5% 50V
C204	1-162-211-31	s	CERAMIC 33PF 5% 50V
C301	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C302	1-130-472-00	s	MYLAR 0.0012uF 5% 50V
C303	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C304	1-126-233-11	s	ELECT 22uF 20% 50V
C305	1-126-233-11	s	ELECT 22uF 20% 50V
C306	1-162-286-31	s	CERAMIC 220PF 10% 50V
C307	1-162-288-31	s	CERAMIC 330PF 10% 50V
C308	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C309	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C310	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C311	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C312	1-124-903-11	s	ELECT 1uF 20% 50V
C313	1-124-907-11	s	ELECT 10uF 20% 50V
C401	1-130-491-00	s	MYLAR 0.047uF 5% 50V
C402	1-124-465-00	s	ELECT 0.47uF 20% 50V
C403	1-130-491-00	s	MYLAR 0.047uF 5% 50V
C404	1-124-465-00	s	ELECT 0.47uF 20% 50V
C405	1-130-491-00	s	MYLAR 0.047uF 5% 50V
C406	1-124-465-00	s	ELECT 0.47uF 20% 50V
C409	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C415	1-124-034-51	s	ELECT 33uF 20% 16V
C416	1-130-485-00	s	MYLAR 0.015uF 5% 50V
C417	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C418	1-162-282-31	s	CERAMIC 100PF 10% 50V
C419	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C420	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C421	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C422	1-124-464-11	s	ELECT 0.22MF 20% 50V
C423	1-162-289-31	s	CERAMIC 390PF 10% 50V
C424	1-124-907-11	s	ELECT 10uF 20% 50V
C425	1-124-257-00	s	ELECT 2.2uF 20% 50V
C426	1-124-257-00	s	ELECT 2.2uF 20% 50V
C427	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C428	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C429	1-124-471-00	s	ELECT 1000uF 20% 6.3V
C430	1-124-463-00	s	ELECT 0.1uF 20% 50V
C433	1-124-903-11	s	ELECT 1uF 20% 50V
C503	1-124-907-11	s	ELECT 10uF 20% 50V
C504	1-124-465-00	s	ELECT 0.47uF 20% 50V
C505	1-124-120-11	s	ELECT 220uF 20% 25V
C507	1-162-286-31	s	CERAMIC 220PF 10% 50V
C702	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C703	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C704	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C705	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C706	1-124-119-00	s	ELECT 330uF 20% 16V
C709	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C710	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C711	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C712	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C714	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C716	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C718	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C719	1-161-039-00	s	CERAMIC 0.001uF 10% 50V
CN410	1-506-471-11	s	CONNECTOR, 6P, MALE
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D7	8-719-911-55	s	DIODE U05G
D101	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119
D104	8-719-911-19	s	DIODE 1SS119
D105	8-719-911-19	s	DIODE 1SS119
D106	8-719-911-19	s	DIODE 1SS119
D107	8-719-911-19	s	DIODE 1SS119
D108	8-719-911-19	s	DIODE 1SS119
D109	8-719-911-19	s	DIODE 1SS119
D110	8-719-911-19	s	DIODE 1SS119
D111	8-719-911-19	s	DIODE 1SS119

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

(SV-93H BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D112	8-719-911-19	s	DIODE 1SS119
D113	8-719-911-19	s	DIODE 1SS119
D201	8-719-911-19	s	DIODE 1SS119
D202	8-719-911-19	s	DIODE 1SS119
D204	8-719-911-19	s	DIODE 1SS119
D205	8-719-911-19	s	DIODE 1SS119
D206	8-719-911-19	s	DIODE 1SS119
D207	8-719-911-19	s	DIODE 1SS119
D210	8-719-111-35	s	DIODE RD3.0ES-B
D211	8-719-911-19	s	DIODE 1SS119
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D401	8-719-911-19	s	DIODE 1SS119
D402	8-719-911-19	s	DIODE 1SS119
D403	8-719-911-19	s	DIODE 1SS119
D404	8-719-911-19	s	DIODE 1SS119
D405	8-719-911-19	s	DIODE 1SS119
D406	8-719-911-19	s	DIODE 1SS119
D407	8-719-911-19	s	DIODE 1SS119
D408	8-719-911-19	s	DIODE 1SS119
D409	8-719-911-19	s	DIODE 1SS119
D410	8-719-911-19	s	DIODE 1SS119
D411	8-719-911-19	s	DIODE 1SS119
D412	8-719-911-19	s	DIODE 1SS119
D501	8-719-911-19	s	DIODE 1SS119
D600	8-719-911-19	s	DIODE 1SS119
IC1	8-759-912-77	s	IC LM324N
IC2	8-759-981-95	s	IC RC4558S
IC3	8-759-981-90	s	IC NJM4558D-D
IC4	8-759-240-81	s	IC TC4081BP
IC5	8-759-140-53	s	IC UPD4053BC
IC6	8-759-140-53	s	IC UPD4053BC
IC8	8-759-912-77	s	IC LM324N
IC9	8-759-912-77	s	IC LM324N
IC10	8-759-133-90	s	IC UPC339C
IC11	8-759-207-73	s	IC UPD4030BC
IC12	8-759-135-80	s	IC UPC358C
IC13	8-759-140-53	s	IC UPD4053BC
IC14	8-759-340-13	s	IC HD14013BP
IC15	8-759-031-98	s	IC MC14001UBCP
IC16	8-759-140-53	s	IC UPD4053BC
IC17	8-751-941-05	s	IC CX194B-5
IC18	8-759-945-41	s	IC MB88505-547M
IC19	8-759-040-70	s	IC MC14070BCP
IC20	8-759-140-53	s	IC UPD4053BC
IC21	8-743-915-10	s	IC BX3915A
IC22	8-759-135-80	s	IC UPC358C
Q1	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q2	8-729-119-76	s	TRANSISTOR 2SA1115P
Q3	8-729-376-84	s	TRANSISTOR 2SA768-G
Q4	8-729-804-91	s	TRANSISTOR 2SD1682-S
Q5	8-729-140-96	s	TRANSISTOR 2SD774-4
Q101	8-729-900-89	s	TRANSISTOR DTC144ES
Q102	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q103	8-729-900-83	s	TRANSISTOR DTC124XS
Q104	8-729-119-76	s	TRANSISTOR 2SA1115P
Q105	8-729-119-78	s	TRANSISTOR 2SC2785-HFE

(SV-93H BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q106	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q107	8-729-105-73	s	TRANSISTOR 2SK523-L2
Q108	8-729-900-83	s	TRANSISTOR DTC124XS
Q109	8-729-900-89	s	TRANSISTOR DTC144ES
Q110	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q111	8-729-376-84	s	TRANSISTOR 2SA768-G
Q112	8-729-119-76	s	TRANSISTOR 2SA1115P
Q113	8-729-804-91	s	TRANSISTOR 2SD1682-S
Q114	8-729-900-67	s	TRANSISTOR DTA124XS
Q201	8-729-900-83	s	TRANSISTOR DTC124XS
Q202	8-729-900-83	s	TRANSISTOR DTC124XS
Q203	8-729-900-83	s	TRANSISTOR DTC124XS
Q204	8-729-900-83	s	TRANSISTOR DTC124XS
Q205	8-729-900-83	s	TRANSISTOR DTC124XS
Q206	8-729-900-83	s	TRANSISTOR DTC124XS
Q301	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q302	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q303	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q304	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q305	8-729-900-83	s	TRANSISTOR DTC124XS
Q401	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q403	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q404	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q410	8-729-900-67	s	TRANSISTOR DTA124XS
Q411	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q412	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q413	8-729-900-83	s	TRANSISTOR DTC124XS
R12	1-247-895-00	s	CARBON 470K 5% 1/4W
R13	1-247-881-00	s	CARBON 120K 5% 1/4W
R14	1-247-903-00	s	CARBON 1M 5% 1/4W
R15	1-247-903-00	s	CARBON 1M 5% 1/4W
R17	1-247-895-00	s	CARBON 470K 5% 1/4W
R35	1-247-901-11	s	CARBON 820K 5% 1/4
R36	1-247-887-00	s	CARBON 220K 5% 1/4W
R42	⚠1-207-621-00	s	WIREWOUND 1.5 10% 3W
R111	1-247-893-11	s	CARBON 390K 5% 1/4W
R125	1-247-887-00	s	CARBON 220K 5% 1/4W
R145	1-215-461-00	s	METAL 47K 1% 1/6W
R146	1-215-461-00	s	METAL 47K 1% 1/6W
R147	1-247-895-00	s	CARBON 470K 5% 1/4W
R150	1-247-903-00	s	CARBON 1M 5% 1/4W
R151	1-247-891-00	s	CARBON 330K 5% 1/4W
R162	1-247-895-00	s	CARBON 470K 5% 1/4W
R172	1-247-891-00	s	CARBON 330K 5% 1/4W
R175	1-247-903-00	s	CARBON 1M 5% 1/4W
R176	1-247-887-00	s	CARBON 220K 5% 1/4W
R178	1-247-895-00	s	CARBON 470K 5% 1/4W
R223	1-247-897-11	s	CARBON 560K 5% 1/4W
R224	1-247-897-11	s	CARBON 560K 5% 1/4W
R232	1-249-427-11	s	CARBON 6.8K 5% 1/4W
R235	1-215-449-00	s	METAL 15K 1% 1/6W
R236	1-215-456-00	s	METAL 30K 1% 1/6W
R237	1-215-464-00	s	METAL 62K 1% 1/6W
R239	1-215-478-00	s	METAL 240K 1% 1/6W
R240	1-215-486-00	s	METAL 510K 1% 1/6W
R260	1-247-895-00	s	CARBON 470K 5% 1/4W
R305	1-247-903-00	s	CARBON 1M 5% 1/4W
R306	1-247-895-00	s	CARBON 470K 5% 1/4W

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

(SV-93H BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R310	1-247-903-00	s	CARBON 1M 5% 1/4W
R311	1-247-895-00	s	CARBON 470K 5% 1/4W
R315	1-247-903-00	s	CARBON 1M 5% 1/4W
R326	1-247-883-00	s	CARBON 150K 5% 1/4W
R328	1-247-903-00	s	CARBON 1M 5% 1/4W
R432	1-247-903-00	s	CARBON 1M 5% 1/4W
R433	1-247-889-00	s	CARBON 270K 5% 1/4W
R461	⚠1-207-636-00	s	WIREWOUND 100 10% 3W
R600	⚠1-532-685-00	s	LINK, IC 0.6A
RV1	1-228-994-00	s	RES, ADJ, METAL 10K
RV2	1-228-990-00	s	RES, ADJ, METAL 1K
RV3	1-228-990-00	s	RES, ADJ, METAL 1K
RV100	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV101	1-228-994-00	s	RES, ADJ, METAL 10K
RV102	1-228-994-00	s	RES, ADJ, METAL 10K
RV105	1-228-995-00	s	RES, ADJ, METAL 22K
RV106	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV107	1-228-995-00	s	RES, ADJ, METAL 22K
RV201	1-228-990-00	s	RES, ADJ, METAL 1K
RV401	1-228-996-00	s	RES, ADJ, METAL 47K
RV402	1-228-996-00	s	RES, ADJ, METAL 47K
RV403	1-228-996-00	s	RES, ADJ, METAL 47K
RV404	1-228-996-00	s	RES, ADJ, METAL 47K
RV405	1-228-996-00	s	RES, ADJ, METAL 47K
RV406	1-228-997-00	s	RES, ADJ, METAL 100K
RV407	1-228-997-00	s	RES, ADJ, METAL 100K
X2	1-527-734-00	s	CRYSTAL 6.0MHz

SV-93H BOARD

This Board (Part No. 1-622-386-92) is used for the following unit.
(J) Serial No. 10041 and higher
(UC) Serial No. 10061 and higher
(EK) Serial No. 10041 and higher

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6715-458-A	o	MOUNTED CIRCUIT BOARD, SV-93H
C1	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C2	1-130-489-00	s	MYLAR 0.033uF 5% 50V
C3	1-124-903-11	s	ELECT 1uF 20% 50V
C4	1-124-034-51	s	ELECT 33uF 20% 16V
C5	1-130-491-00	s	MYLAR 0.047uF 5% 50V
C6	1-161-377-00	s	CERAMIC 0.0047uF 20% 50V
C7	1-161-374-11	s	CERAMIC 0.0015uF 20% 50V
C8	1-130-493-00	s	MYLAR 0.068uF 5% 50V
C9	1-124-257-00	s	ELECT 2.2uF 20% 50V
C10	1-131-352-00	s	TANTALUM 6.8uF 10% 35V
C11	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C12	1-161-329-00	s	CERAMIC 0.0068uF 30% 16V
C13	1-124-034-51	s	ELECT 33uF 20% 16V
C14	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C16	1-124-480-11	s	ELECT 470uF 20% 25V
C17	1-161-057-00	s	CERAMIC 0.033uF 10% 50V
C18	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C19	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C102	1-130-489-00	s	MYLAR 0.033uF 5% 50V
C103	1-130-489-00	s	MYLAR 0.033uF 5% 50V
C104	1-162-215-31	s	CERAMIC 47PF 5% 50V
C105	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C106	1-161-047-00	s	CERAMIC 0.0047uF 10% 25V
C107	1-124-477-11	s	ELECT 47uF 20% 25V
C108	1-124-907-11	s	ELECT 10uF 20% 50V
C111	1-130-474-00	s	MYLAR 0.0018uF 5% 50V
C112	1-130-474-00	s	MYLAR 0.0018uF 5% 50V
C113	1-130-492-11	s	MYLAR 0.056uF 5% 50V
C114	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C115	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C116	1-162-286-31	s	CERAMIC 220PF 10% 50V
C117	1-130-490-11	s	MYLAR 0.039uF 5% 50V
C118	1-130-478-00	s	MYLAR 0.0039uF 5% 50V
C119	1-130-497-00	s	MYLAR 0.15uF 5% 50V
C120	1-162-288-31	s	CERAMIC 330PF 10% 50V
C201	1-130-486-00	s	MYLAR 0.018uF 10% 50V
C203	1-162-211-31	s	CERAMIC 33PF 5% 50V
C204	1-162-211-31	s	CERAMIC 33PF 5% 50V
C301	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C302	1-130-472-00	s	MYLAR 0.0012uF 5% 50V
C303	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C304	1-126-233-11	s	ELECT 22uF 20% 50V
C305	1-126-233-11	s	ELECT 22uF 20% 50V
C306	1-162-286-31	s	CERAMIC 220PF 10% 50V
C307	1-162-288-31	s	CERAMIC 330PF 10% 50V
C308	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C309	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C310	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C311	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C312	1-124-903-11	s	ELECT 1uF 20% 50V
C313	1-124-907-11	s	ELECT 10uF 20% 50V
C401	1-130-491-00	s	MYLAR 0.047uF 5% 50V

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

(SV-93H BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C402	1-124-465-00	s	ELECT 0.47uF 20% 50V
C403	1-130-491-00	s	MYLAR 0.047uF 5% 50V
C404	1-124-465-00	s	ELECT 0.47uF 20% 50V
C405	1-130-491-00	s	MYLAR 0.047uF 5% 50V
C406	1-124-465-00	s	ELECT 0.47uF 20% 50V
C409	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C415	1-124-034-51	s	ELECT 33uF 20% 16V
C416	1-130-485-00	s	MYLAR 0.015uF 5% 50V
C417	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C418	1-162-282-31	s	CERAMIC 100PF 10% 50V
C419	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C420	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C421	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C422	1-124-464-11	s	ELECT 0.22MF 20% 50V
C423	1-162-289-31	s	CERAMIC 390PF 10% 50V
C424	1-124-907-11	s	ELECT 10uF 20% 50V
C425	1-124-257-00	s	ELECT 2.2uF 20% 50V
C426	1-124-257-00	s	ELECT 2.2uF 20% 50V
C427	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C428	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C429	1-124-471-00	s	ELECT 1000uF 20% 6.3V
C430	1-124-463-00	s	ELECT 0.1uF 20% 50V
C433	1-124-903-11	s	ELECT 1uF 20% 50V
C503	1-124-907-11	s	ELECT 10uF 20% 50V
C504	1-124-465-00	s	ELECT 0.47uF 20% 50V
C505	1-124-120-11	s	ELECT 220uF 20% 25V
C507	1-162-286-31	s	CERAMIC 220PF 10% 50V
C702	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C703	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C704	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C705	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C706	1-124-119-00	s	ELECT 330uF 20% 16V
C709	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C710	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C711	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C712	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C714	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C716	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C718	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C719	1-161-039-00	s	CERAMIC 0.001uF 10% 50V
CN410	1-506-471-11	s	CONNECTOR, 6P, MALE
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D7	8-719-911-55	s	DIODE U05G
D101	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119
D104	8-719-911-19	s	DIODE 1SS119
D105	8-719-911-19	s	DIODE 1SS119
D106	8-719-911-19	s	DIODE 1SS119
D107	8-719-911-19	s	DIODE 1SS119
D108	8-719-911-19	s	DIODE 1SS119
D109	8-719-911-19	s	DIODE 1SS119
D110	8-719-911-19	s	DIODE 1SS119
D111	8-719-911-19	s	DIODE 1SS119

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

(SV-93H BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D112	8-719-911-19	s	DIODE 1SS119
D113	8-719-911-19	s	DIODE 1SS119
D201	8-719-911-19	s	DIODE 1SS119
D202	8-719-911-19	s	DIODE 1SS119
D204	8-719-911-19	s	DIODE 1SS119
D205	8-719-911-19	s	DIODE 1SS119
D206	8-719-911-19	s	DIODE 1SS119
D207	8-719-911-19	s	DIODE 1SS119
D210	8-719-111-35	s	DIODE RD3.0ES-B
D211	8-719-911-19	s	DIODE 1SS119
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D401	8-719-911-19	s	DIODE 1SS119
D402	8-719-911-19	s	DIODE 1SS119
D403	8-719-911-19	s	DIODE 1SS119
D404	8-719-911-19	s	DIODE 1SS119
D405	8-719-911-19	s	DIODE 1SS119
D406	8-719-911-19	s	DIODE 1SS119
D407	8-719-911-19	s	DIODE 1SS119
D408	8-719-911-19	s	DIODE 1SS119
D409	8-719-911-19	s	DIODE 1SS119
D410	8-719-911-19	s	DIODE 1SS119
D411	8-719-911-19	s	DIODE 1SS119
D412	8-719-911-19	s	DIODE 1SS119
D501	8-719-911-19	s	DIODE 1SS119
D600	8-719-911-19	s	DIODE 1SS119
IC1	8-759-912-77	s	IC LM324N
IC2	8-759-981-95	s	IC RC4558S
IC3	8-759-981-90	s	IC NJM4558D-D
IC4	8-759-240-81	s	IC TC4081BP
IC5	8-759-140-53	s	IC UPD4053BC
IC6	8-759-140-53	s	IC UPD4053BC
IC8	8-759-912-77	s	IC LM324N
IC9	8-759-912-77	s	IC LM324N
IC10	8-759-133-90	s	IC UPC339C
IC11	8-759-207-73	s	IC UPD4030BC
IC12	8-759-135-80	s	IC UPC358C
IC13	8-759-140-53	s	IC UPD4053BC
IC14	8-759-340-13	s	IC HD14013BP
IC15	8-759-031-98	s	IC MC14001UBCP
IC16	8-759-140-53	s	IC UPD4053BC
IC17	8-751-941-05	s	IC CX194B-5
IC18	8-759-945-41	s	IC MB88505-547M
IC19	8-759-040-70	s	IC MC14070BCP
IC20	8-759-140-53	s	IC UPD4053BC
IC21	8-743-915-10	s	IC BX3915A
IC22	8-759-135-80	s	IC UPC358C
Q1	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q2	8-729-119-76	s	TRANSISTOR 2SA1115P
Q3	8-729-376-84	s	TRANSISTOR 2SA768-G
Q4	8-729-804-91	s	TRANSISTOR 2SD1682-S
Q5	8-729-140-96	s	TRANSISTOR 2SD774-4
Q101	8-729-900-89	s	TRANSISTOR DTC144ES
Q102	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q103	8-729-900-83	s	TRANSISTOR DTC124XS
Q104	8-729-119-76	s	TRANSISTOR 2SA1115P
Q105	8-729-119-78	s	TRANSISTOR 2SC2785-HFE

(SV-93H BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q106	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q107	8-729-105-73	s	TRANSISTOR 2SK523-L2
Q108	8-729-900-83	s	TRANSISTOR DTC124XS
Q109	8-729-900-89	s	TRANSISTOR DTC144ES
Q110	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q111	8-729-376-84	s	TRANSISTOR 2SA768-G
Q112	8-729-119-76	s	TRANSISTOR 2SA1115P
Q113	8-729-804-91	s	TRANSISTOR 2SD1682-S
Q114	8-729-900-67	s	TRANSISTOR DTA124XS
Q201	8-729-900-83	s	TRANSISTOR DTC124XS
Q202	8-729-900-83	s	TRANSISTOR DTC124XS
Q203	8-729-900-83	s	TRANSISTOR DTC124XS
Q204	8-729-900-83	s	TRANSISTOR DTC124XS
Q205	8-729-900-83	s	TRANSISTOR DTC124XS
Q206	8-729-900-83	s	TRANSISTOR DTC124XS
Q301	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q302	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q303	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q304	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q305	8-729-900-83	s	TRANSISTOR DTC124XS
Q401	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q403	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q404	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q410	8-729-900-67	s	TRANSISTOR DTA124XS
Q411	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q412	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q413	8-729-900-83	s	TRANSISTOR DTC124XS
Q701	8-729-900-36	s	TRANSISTOR DTC124ES
R12	1-247-895-00	s	CARBON 470K 5% 1/4W
R13	1-247-881-00	s	CARBON 120K 5% 1/4W
R14	1-247-903-00	s	CARBON 1M 5% 1/4W
R15	1-247-903-00	s	CARBON 1M 5% 1/4W
R17	1-247-895-00	s	CARBON 470K 5% 1/4W
R35	1-247-901-11	s	CARBON 820K 5% 1/4
R36	1-247-887-00	s	CARBON 220K 5% 1/4W
R42	⚠1-207-621-00	s	WIREWOUND 1.5 10% 3W
R111	1-247-893-11	s	CARBON 390K 5% 1/4W
R125	1-247-887-00	s	CARBON 220K 5% 1/4W
R145	1-215-461-00	s	METAL 47K 1% 1/6W
R146	1-215-461-00	s	METAL 47K 1% 1/6W
R147	1-247-895-00	s	CARBON 470K 5% 1/4W
R150	1-247-903-00	s	CARBON 1M 5% 1/4W
R151	1-247-891-00	s	CARBON 330K 5% 1/4W
R162	1-247-895-00	s	CARBON 470K 5% 1/4W
R172	1-247-891-00	s	CARBON 330K 5% 1/4W
R175	1-247-903-00	s	CARBON 1M 5% 1/4W
R176	1-247-887-00	s	CARBON 220K 5% 1/4W
R178	1-247-895-00	s	CARBON 470K 5% 1/4W
R223	1-247-897-11	s	CARBON 560K 5% 1/4W
R224	1-247-897-11	s	CARBON 560K 5% 1/4W
R232	1-249-427-11	s	CARBON 6.8K 5% 1/4W
R235	1-215-449-00	s	METAL 15K 1% 1/6W
R236	1-215-456-00	s	METAL 30K 1% 1/6W
R237	1-215-464-00	s	METAL 62K 1% 1/6W
R239	1-215-478-00	s	METAL 240K 1% 1/6W
R240	1-215-486-00	s	METAL 510K 1% 1/6W
R260	1-247-895-00	s	CARBON 470K 5% 1/4W
R305	1-247-903-00	s	CARBON 1M 5% 1/4W

(SV-93H BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R306	1-247-895-00	s	CARBON 470K 5% 1/4W
R310	1-247-903-00	s	CARBON 1M 5% 1/4W
R311	1-247-895-00	s	CARBON 470K 5% 1/4W
R315	1-247-903-00	s	CARBON 1M 5% 1/4W
R326	1-247-883-00	s	CARBON 150K 5% 1/4W
R328	1-247-903-00	s	CARBON 1M 5% 1/4W
R432	1-247-903-00	s	CARBON 1M 5% 1/4W
R433	1-247-889-00	s	CARBON 270K 5% 1/4W
R461	⚠1-207-636-00	s	WIREWOUND 100 10% 3W
R600	⚠1-532-685-00	s	LINK, IC 0.6A
R701	1-215-469-00	s	METAL 100K 1% 1/4W
RV1	1-228-994-00	s	RES, ADJ, METAL 10K
RV2	1-228-990-00	s	RES, ADJ, METAL 1K
RV3	1-228-990-00	s	RES, ADJ, METAL 1K
RV100	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV101	1-228-994-00	s	RES, ADJ, METAL 10K
RV102	1-228-994-00	s	RES, ADJ, METAL 10K
RV105	1-228-995-00	s	RES, ADJ, METAL 22K
RV106	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV107	1-228-995-00	s	RES, ADJ, METAL 22K
RV201	1-228-990-00	s	RES, ADJ, METAL 1K
RV401	1-228-996-00	s	RES, ADJ, METAL 47K
RV402	1-228-996-00	s	RES, ADJ, METAL 47K
RV403	1-228-996-00	s	RES, ADJ, METAL 47K
RV404	1-228-996-00	s	RES, ADJ, METAL 47K
RV405	1-228-996-00	s	RES, ADJ, METAL 47K
RV406	1-228-997-00	s	RES, ADJ, METAL 100K
RV407	1-228-997-00	s	RES, ADJ, METAL 100K
X2	1-527-734-00	s	CRYSTAL 6.0MHz

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

SY-174 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6717-640-A	o	MOUNTED CIRCUIT BOARD, SY-174
C2	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C3	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C4	1-161-041-00	s	CERAMIC 0.0015uF 10% 25V
C5	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C6	1-161-055-00	s	CERAMIC 0.022uF 10% 50V
C7	1-126-233-11	s	ELECT 22uF 20% 50V
C8	1-126-233-11	s	ELECT 22uF 20% 50V
C10	1-162-286-31	s	CERAMIC 220PF 10% 50V
C11	1-131-347-00	s	TANTALUM 1uF 10% 35V
C14	1-162-286-31	s	CERAMIC 220PF 10% 50V
C15	1-130-490-11	s	MYLAR 0.039uF 5% 50V
C17	1-131-347-00	s	TANTALUM 1uF 10% 35V
C18	1-131-352-00	s	TANTALUM 6.8uF 10% 35V
C19	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C20	1-161-057-00	s	CERAMIC 0.033uF 10% 50V
C21	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C22	1-162-216-31	s	CERAMIC 51PF 5% 50V
C23	1-124-903-11	s	ELECT 1uF 20% 50V
C24	1-124-907-11	s	ELECT 10uF 20% 50V
C25	1-124-126-00	s	ELECT 47uF 20% 25V
C26	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C28	1-124-126-00	s	ELECT 47uF 20% 25V
C30	1-124-903-11	s	ELECT 1uF 20% 50V
C31	1-161-039-00	s	CERAMIC 0.001uF 10% 50V
C32	1-162-211-31	s	CERAMIC 33PF 5% 50V
C33	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C34	1-161-039-00	s	CERAMIC 0.001uF 10% 50V
C35	1-124-126-00	s	ELECT 47uF 20% 25V
C36	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C37	1-162-211-31	s	CERAMIC 33PF 5% 50V
C38	1-161-055-00	s	CERAMIC 0.022uF 10% 50V
C41	1-124-126-00	s	ELECT 47uF 20% 25V
C42	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C45	1-126-176-11	s	ELECT 220uF 20% 10V
C46	1-162-290-31	s	CERAMIC 470PF 10% 50V
C47	1-162-210-31	s	CERAMIC 30PF 5% 50V
C48	1-162-210-31	s	CERAMIC 30PF 5% 50V
C49	1-124-903-11	s	ELECT 1uF 20% 50V
C50	1-124-903-11	s	ELECT 1uF 20% 50V
C51	1-124-126-00	s	ELECT 47uF 20% 25V
C52	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C54	1-124-902-00	s	ELECT 0.47uF 20% 50V
C55	1-162-290-31	s	CERAMIC 470PF 10% 50V
C56	1-124-907-11	s	ELECT 10uF 20% 50V
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D7	8-719-911-19	s	DIODE 1SS119
D8	8-719-911-19	s	DIODE 1SS119
D9	8-719-911-19	s	DIODE 1SS119
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-911-19	s	DIODE 1SS119
D12	8-719-911-19	s	DIODE 1SS119
D13	8-719-911-19	s	DIODE 1SS119

(SY-174 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D14	8-719-911-19	s	DIODE 1SS119
D15	8-719-911-19	s	DIODE 1SS119
D16	8-719-911-19	s	DIODE 1SS119
D17	8-719-911-19	s	DIODE 1SS119
D18	8-719-911-19	s	DIODE 1SS119
D20	8-719-911-19	s	DIODE 1SS119
D21	8-719-911-55	s	DIODE U05G
D22	8-719-911-55	s	DIODE U05G
D23	8-719-911-55	s	DIODE U05G
D24	8-719-911-19	s	DIODE 1SS119
D25	8-719-911-19	s	DIODE 1SS119
D26	8-719-911-19	s	DIODE 1SS119
D31	8-719-911-19	s	DIODE 1SS119
D32	8-719-911-19	s	DIODE 1SS119
D33	8-719-911-19	s	DIODE 1SS119
D43	8-719-101-97	s	DIODE 1SS97-1
IC1	8-759-145-58	s	IC UPC4558C
IC2	8-759-145-58	s	IC UPC4558C
IC3	8-759-045-38	s	IC MC14538BCP
IC4	8-759-135-80	s	IC UPC358C
IC5	8-759-145-58	s	IC UPC4558C
IC6	8-759-240-69	s	IC TC4069UBP
IC7	8-759-970-94	s	IC MB88525-184M
IC8	8-759-103-93	s	IC UPC393C
IC9	8-759-600-24	s	IC M54543L
IC10	8-759-600-24	s	IC M54543L
IC11	8-759-240-69	s	IC TC4069UBP
IC12	8-759-945-41	s	IC MB88505-547M
IC13	8-759-220-00	s	IC TC40H000P
IC14	8-759-913-99	s	IC MB88201-173N
IC15	8-759-103-93	s	IC UPC393C
IC17	8-759-040-01	s	IC MC14001BCP
IC18	8-759-240-69	s	IC TC4069UBP
IC19	8-759-045-38	s	IC MC14538BCP
IC20	8-759-916-71	s	IC SN74HC244N
Q1	8-729-320-62	s	TRANSISTOR 2SD789-34
Q3	8-729-889-40	s	TRANSISTOR 2SD894
Q4	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q5	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q6	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q7	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q8	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q9	8-729-900-89	s	TRANSISTOR DTC144ES
Q10	8-729-119-76	s	TRANSISTOR 2SA1115P
Q11	8-729-900-89	s	TRANSISTOR DTC144ES
Q12	8-729-119-76	s	TRANSISTOR 2SA1115P
Q13	8-729-900-89	s	TRANSISTOR DTC144ES
Q14	8-729-900-89	s	TRANSISTOR DTC144ES
Q15	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q16	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q17	8-729-900-89	s	TRANSISTOR DTC144ES
Q18	8-729-900-89	s	TRANSISTOR DTC144ES
Q19	8-729-900-89	s	TRANSISTOR DTC144ES
Q20	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q21	8-729-900-89	s	TRANSISTOR DTC144ES
Q22	8-729-900-89	s	TRANSISTOR DTC144ES
Q23	8-729-900-89	s	TRANSISTOR DTC144ES
Q24	8-729-900-89	s	TRANSISTOR DTC144ES

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

(SY-174 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q25	8-729-900-89	s	TRANSISTOR DTC144ES
Q26	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q27	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q28	8-729-119-76	s	TRANSISTOR 2SA1115P
Q29	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q30	8-729-900-89	s	TRANSISTOR DTC144ES
Q31	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q32	8-729-900-89	s	TRANSISTOR DTC144ES
Q33	8-729-900-89	s	TRANSISTOR DTC144ES
Q34	8-729-900-89	s	TRANSISTOR DTC144ES
Q35	8-729-382-64	s	TRANSISTOR 2SC1826-G
Q36	8-729-900-89	s	TRANSISTOR DTC144ES
Q37	8-729-900-89	s	TRANSISTOR DTC144ES
Q38	8-729-900-89	s	TRANSISTOR DTC144ES
Q39	8-729-900-89	s	TRANSISTOR DTC144ES
Q40	8-729-904-39	s	TRANSISTOR DTC114TS
Q41	8-729-900-89	s	TRANSISTOR DTC144ES
Q42	8-729-900-89	s	TRANSISTOR DTC144ES
Q43	8-729-900-89	s	TRANSISTOR DTC144ES
Q44	8-729-811-11	s	TRANSISTOR 2SD1111
R11	⚠1-207-674-00	s	WIREWOUND 4.7 10% 6W
R12	1-247-903-00	s	CARBON 1M 5% 1/4W
R13	1-247-895-00	s	CARBON 470K 5% 1/4W
R23	1-247-903-00	s	CARBON 1M 5% 1/4W
R24	1-247-895-00	s	CARBON 470K 5% 1/4W
R32	1-247-891-00	s	CARBON 330K 5% 1/4W
R33	1-247-883-00	s	CARBON 150K 5% 1/4W
R34	1-247-882-11	s	CARBON 130K 5% 1/4W
R38	1-247-891-00	s	CARBON 330K 5% 1/4W
R40	1-247-887-00	s	CARBON 220K 5% 1/4W
R41	1-214-707-00	s	METAL 120 1% 1/4W
R47	1-247-889-00	s	CARBON 270K 5% 1/4W
R48	1-247-889-00	s	CARBON 270K 5% 1/4W
R53	1-249-412-11	s	CARBON 390 5% 1/4W
R65	1-247-903-00	s	CARBON 1M 5% 1/4W
R76	1-247-883-00	s	CARBON 150K 5% 1/4W
R85	1-247-883-00	s	CARBON 150K 5% 1/4W
R86	1-247-850-11	s	CARBON 6.2K 5% 1/4W
R112	1-214-705-00	s	METAL 100 1% 1/4W
R119	1-247-903-00	s	CARBON 1M 5% 1/4W
R124	1-247-893-11	s	CARBON 390K 5% 1/4W
R159	1-214-853-00	s	METAL 360 1% 1/2W
R160	1-214-852-00	s	METAL 330 1% 1/2W
R189	1-247-887-00	s	CARBON 220K 5% 1/4W
R192	⚠1-532-637-00	s	LINK, IC 1.0A
R201	⚠1-532-605-00	s	LINK, IC 0.4A
R204	⚠1-532-637-00	s	LINK, IC 1.0A
R207	⚠1-212-853-00	s	RES, FUSIBLE 6.8K 5% 1/4W
R300	⚠1-532-769-21	s	FUSE 0.2A 125V
R401	1-247-893-11	s	CARBON 390K 5% 1/4W
RV1	1-230-722-11	s	RES, ADJ CARBON 22K
RV2	1-230-720-11	s	RES, ADJ CARBON 4.7K
RV3	1-230-720-11	s	RES, ADJ CARBON 4.7K
RV4	1-230-722-11	s	RES, ADJ CARBON 22K
SW1	1-552-509-00	s	SWITCH, DIP 1-CKT
X1	1-567-143-00	s	RESONATOR, CERAMIC 6.00MHz
X2	1-567-192-11	s	RESONATOR, CERAMIC 4.00MHz

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

TG-22 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-618-597-11	o	PRINTED CIRCUIT BOARD, TG-22
D1	8-719-905-56	s	LED EBR5504S,RED

UR-14 BOARD (J/UC)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-413-248-11	s	SWITCHING REGULATOR, UR-14
C101	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C102	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C103	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C104	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C105	⚠1-136-212-00	s	FILM 0.1uF 20% AC250V
C106	⚠1-136-212-00	s	FILM 0.1uF 20% AC250V
C107	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C108	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C109	1-124-961-00	s	ELECT 220uF 20% 200V
C110	1-124-023-00	s	ELECT 4.7uF 20% 350V
C111	1-124-023-00	s	ELECT 4.7uF 20% 350V
C112	1-124-549-00	s	ELECT 100uF 20% 10V
C113	1-124-961-00	s	ELECT 220uF 20% 200V
C114	1-124-549-00	s	ELECT 100uF 20% 10V
C201	1-108-413-00	s	MYLAR 2200PF 10% 200V
C202	1-108-413-00	s	MYLAR 2200PF 10% 200V
C203	1-161-825-11	s	CERAMIC, CHIP 220PF 10% 500V
C204	1-161-825-11	s	CERAMIC, CHIP 220PF 10% 500V
C205	1-161-825-11	s	CERAMIC, CHIP 220PF 10% 500V
C206	1-161-825-11	s	CERAMIC, CHIP 220PF 10% 500V
C207	1-123-357-00	s	ELECT 22uF 20% 50V
C209	1-108-413-00	s	MYLAR 2200PF 10% 200V
C210	1-136-153-00	s	FILM 0.01uF 5% 50V
C211	1-130-212-12	s	FILM 0.1uF 20% 16V
C212	1-124-556-00	s	ELECT 2200uF 20% 16V
C213	1-124-556-00	s	ELECT 2200uF 20% 16V
C214	1-124-556-00	s	ELECT 2200uF 20% 16V
C215	1-124-556-00	s	ELECT 2200uF 20% 16V
C216	1-123-326-00	s	ELECT 3300uF 20% 16V
C217	1-123-332-00	s	ELECT 47uF 20% 25V
C651	1-124-445-00	s	ELECT 100uF 20% 16V
C652	1-130-591-11	s	MYLAR 3300PF 2% 100V
C653	1-136-141-00	s	MYLAR 1000PF 10% 50V
C654	1-136-165-00	s	FILM 0.1uF 5% 50V
C655	1-123-318-00	s	ELECT 33uF 20% 16V
CN101	⚠1-560-436-00	o	CONNECTOR, RECEPTACLE, 3P
	⚠1-561-218-11	o	HOUSING, VASE 3P
	⚠1-561-254-11	o	CONNECTOR, CONTACT
CN201	1-560-438-00	o	CONNECTOR, RECEPTACLE, 5P
	1-561-424-11	o	HOUSING, 5P
	1-561-254-11	o	CONNECTOR, CONTACT
D101	8-719-300-00	s	DIODE GU-3SY
D201	8-719-908-00	s	DIODE ESAC33-02CS
D202	8-719-908-00	s	DIODE ESAC33-02CS
D203	8-719-900-93	s	DIODE V09G
D204	8-719-900-93	s	DIODE V09G
D205	8-719-815-55	s	DIODE 1S1555
D206	8-719-100-61	s	DIODE RD11EB2
D208	8-719-101-67	s	DIODE RD7.5EL2
D209	8-719-100-30	s	DIODE RD5.1E-B2
D210	8-719-100-30	s	DIODE RD5.1E-B2
D651	8-719-200-02	s	DIODE 10E2
D652	8-719-100-70	s	DIODE RD15EB1
D653	8-719-815-55	s	DIODE 1S1555
FB101	1-543-060-00	s	BEAD, FERRITE
FB102	1-543-060-00	s	BEAD, FERRITE

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

(UR-14 BOARD (J/UC))

Ref. No. or Q'ty	Part No.	SP	Description
FB201	1-543-060-00	s	BEAD, FERRITE
FB202	1-543-060-00	s	BEAD, FERRITE
FB203	1-543-060-00	s	BEAD, FERRITE
FB204	1-543-060-00	s	BEAD, FERRITE
FB205	1-543-060-00	s	BEAD, FERRITE
FB206	1-543-060-00	s	BEAD, FERRITE
FB207	1-543-060-00	s	BEAD, FERRITE
FB208	1-543-060-00	s	BEAD, FERRITE
FB209	1-543-060-00	s	BEAD, FERRITE
IC651	8-759-937-00	s	IC SN74ALS1004N
L101	⚠1-421-848-11	s	FILTER, LINE
L201	1-421-849-11	s	COIL, CHOKE 2.4mH
L203	1-408-316-00	s	INDUCTOR
L204	1-421-850-11	s	COIL, CHOKE 12
L205	1-421-329-00	s	COIL, CHOKE
Q101	8-729-901-72	s	TRANSISTOR 2SC3317
Q102	8-729-901-72	s	TRANSISTOR 2SC3317
Q103	8-729-100-13	s	TRANSISTOR 2SC2001-K2
Q104	8-729-100-13	s	TRANSISTOR 2SC2001-K2
Q201	8-729-606-34	s	TRANSISTOR 2SC2603-G
Q202	8-729-117-54	s	TRANSISTOR 2SA1175
R101	1-214-947-00	s	METAL 2.7M 1% 1/2W
R102	⚠1-205-636-11	s	WIRE WOUND 3.3 5% 5W
R103	1-246-529-00	s	CARBON 220k 5% 1/4W
R104	1-246-529-00	s	CARBON 220k 5% 1/4W
R105	1-212-934-00	s	RES, FUSIBLE 1 5% 1/2W
R106	1-247-770-11	s	CARBON 100 5% 1/4W
R107	1-246-529-00	s	CARBON 220k 5% 1/4W
R108	1-246-529-00	s	CARBON 220k 5% 1/4W
R109	⚠1-212-934-00	s	RES, FUSIBLE 1 5% 1/2W
R110	1-247-770-11	s	CARBON 100 5% 1/4W
R111	⚠1-205-715-00	s	WIRE WOUND 3.3 5% 5W
R201	⚠1-206-475-00	s	METAL 33 5% 2W
R202	1-535-369-00	s	SHUNT, 0.02 5% 2W
R203	⚠1-213-151-00	s	METAL 4.7k 5% 5W
R204	1-247-713-11	s	CARBON 1K 5% 1/4W
R205	1-247-719-11	s	CARBON 3.3K 5% 1/4W
R206	1-249-455-11	s	CARBON 4.7 5% 1/4W
R207	1-247-717-11	s	CARBON 2.2K 5% 1/4W
R208	1-247-123-00	s	CARBON 470 5% 1/4W
R209	1-247-704-11	s	CARBON 220 5% 1/4W
R212	1-247-857-11	s	CARBON 220 5% 1/2W
R651	1-249-425-11	s	CARBON 4.7K 5% 1/6W
RV651	1-228-644-00	s	METAL 1k 0.3W
T101	⚠1-448-423-11	s	CONVERTER
T102	⚠1-437-120-00	s	DRIVE

UR-14E BOARD (EK)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-413-249-12	s	SWITCHING REGULATOR, UR-14E
C101	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C102	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C103	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C104	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C105	⚠1-136-185-00	s	FILM 22uF 20% 250V
C106	⚠1-136-185-00	s	FILM 0.22uF 20% 250V
C107	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C108	⚠1-161-742-00	s	CERAMIC 0.0022uF 20% 400V
C109	1-124-961-00	s	ELECT 220uF 20% 200V
C110	1-124-023-00	s	ELECT 4.7uF 20% 350V
C111	1-124-023-00	s	ELECT 4.7uF 20% 350V
C112	1-124-549-00	s	ELECT 100uF 20% 10V
C113	1-124-961-00	s	ELECT 220uF 20% 200V
C114	1-124-549-00	s	ELECT 100uF 20% 10V
C201	1-106-351-00	s	MYLAR 0.0022 5% 200V
C202	1-106-351-00	s	MYLAR 0.0022 5% 200V
C203	1-161-825-11	s	CERAMIC, CHIP 220PF 10% 500V
C204	1-161-825-11	s	CERAMIC, CHIP 220PF 10% 500V
C205	1-161-825-11	s	CERAMIC, CHIP 220PF 10% 500V
C206	1-161-825-11	s	CERAMIC, CHIP 220PF 10% 500V
C207	1-123-357-00	s	ELECT 22uF 5% 200V
C209	1-106-351-00	s	MYLAR 2200PF 10% 200V
C210	1-136-153-00	s	FILM 0.01uF 5% 50V
C211	1-106-351-00	s	FILM 0.0022uF 5% 200V
C212	1-124-556-00	s	ELECT 2200uF 20% 16V
C213	1-124-556-00	s	ELECT 2200uF 20% 16V
C214	1-124-556-00	s	ELECT 2200uF 20% 16V
C215	1-124-556-00	s	ELECT 2200uF 20% 16V
C216	1-123-326-00	s	ELECT 3300uF 20% 16V
C217	1-123-332-00	s	ELECT 47uF 20% 25V
C651	1-124-445-00	s	ELECT 100uF 20% 16V
C652	1-130-591-11	s	MYLAR 3300PF 2% 100V
C653	1-136-141-00	s	MYLAR 1000PF 10% 50V
C654	1-136-165-00	s	FILM 0.1uF 5% 50V
C655	1-123-318-00	s	ELECT 33uF 20% 16V
CN101	⚠1-560-436-00	o	CONNECTOR, RECEPTACLE, 3P
	⚠1-561-218-11	o	HOUSING, VASE 3P
	⚠1-561-254-00	o	CONNECTOR, CONTACT
CN201	1-560-438-00	o	CONNECTOR, RECEPTACLE, 5P
	1-561-424-11	o	HOUSING, 5P
	1-561-432-00	o	CONNECTOR, CONTACT
D101	8-719-300-00	s	DIODE GU-3SY
D201	8-719-908-00	s	DIODE ESAC33-02CS
D202	8-719-908-00	s	DIODE ESAC33-02CS
D203	8-719-900-93	s	DIODE V09G
D204	8-719-900-93	s	DIODE V09G
D205	8-719-815-55	s	DIODE 1S1555
D206	8-719-100-61	s	DIODE RD11EB2
D208	8-719-101-67	s	DIODE RD7.5EL2
D209	8-719-100-30	s	DIODE RD5.1E-B2
D210	8-719-100-30	s	DIODE RD5.1E-B2
D651	8-719-200-02	s	DIODE 10E2
D652	8-719-100-70	s	DIODE RD15EB1
D653	8-719-815-55	s	DIODE 1S1555
FB101	1-543-060-00	s	BEAD, FERRITE
FB102	1-543-060-00	s	BEAD, FERRITE

(UR-14E BOARD (EK))

Ref. No. or Q'ty	Part No.	SP	Description
FB201	1-543-060-00	s	BEAD, FERRITE
FB202	1-543-060-00	s	BEAD, FERRITE
FB203	1-543-060-00	s	BEAD, FERRITE
FB204	1-543-060-00	s	BEAD, FERRITE
FB205	1-543-060-00	s	BEAD, FERRITE
FB206	1-543-060-00	s	BEAD, FERRITE
FB207	1-543-060-00	s	BEAD, FERRITE
FB208	1-543-060-00	s	BEAD, FERRITE
IC651	8-759-937-00	s	IC SN74ALS1004N
L101	⚠1-421-848-11	s	FILTER, LINE
L201	1-421-849-11	s	COIL, CHOKE 2.4mH
L203	1-408-316-00	s	INDUCTOR
L204	1-421-850-11	s	COIL, CHOKE, 12
L205	1-421-329-00	s	COIL, CHOKE
Q101	8-729-901-72	s	TRANSISTOR 2SC3317
Q102	8-729-901-72	s	TRANSISTOR 2SC3317
Q103	8-729-100-13	s	TRANSISTOR 2SC2001-K2
Q104	8-729-100-13	s	TRANSISTOR 2SC2001-K2
Q201	8-729-606-34	s	TRANSISTOR 2SC2603-G
Q202	8-729-117-54	s	TRANSISTOR 2SA1175
R101	1-214-947-00	s	METAL 2.7M 1% 1/2W
R102	⚠1-205-636-11	s	WIRE WOUND 3.3 5% 5W
R103	1-246-529-00	s	CARBON 220k 5% 1/4W
R104	1-246-529-00	s	CARBON 220k 5% 1/4W
R105	⚠1-212-934-00	s	RES, FUSIBLE 1 5% 1/2W
R106	1-247-700-11	s	CARBON 100 5% 1/4W
R107	1-246-529-00	s	CARBON 220k 5% 1/4W
R108	1-246-529-00	s	CARBON 220k 5% 1/4W
R109	⚠1-212-934-00	s	RES, FUSIBLE 1 5% 1/2W
R110	1-247-700-11	s	CARBON 100 5% 1/4W
R201	⚠1-206-475-00	s	METAL 33 5% 2W
R202	1-535-369-00	s	SHUNT, 0.02 5% 2W
R203	⚠1-213-151-00	s	METAL 4.7k 5% 5W
R204	1-247-713-11	s	CARBON 1K 5% 1/4W
R205	1-247-719-11	s	CARBON 3.3K 5% 1/4W
R206	1-249-455-11	s	CARBON 4.7 5% 1/4W
R207	1-247-717-11	s	CARBON 2.2K 5% 1/4W
R208	1-247-123-00	s	CARBON 470 5% 1/4W
R209	1-247-704-11	s	CARBON 220 5% 1/4W
R212	1-247-857-00	s	CARBON 220 5% 1/2W
RV651	1-228-644-00	s	METAL 1k 0.3W
T101	⚠1-448-423-11	s	CONVERTER
T102	⚠1-437-120-00	s	DRIVE

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

VL-5 BOARD

This Board (Part No. 1-642-141-11) is installed on the following VO-39 Board.
(J) Serial No. 10001 through 10040
(UC) Serial No. 10001 though 10060
(EK) Serial No. 10001 through 10040

Ref. No. or Q'ty	Part No.	SP	Description
C2	1-161-494-00	s	CERAMIC 0.022uF 25V
C5	1-124-907-11	s	ELECT 10uF 20% 50V
C7	1-161-494-00	s	CERAMIC 0.022uF 25V
C8	1-162-306-11	s	CERAMIC 0.01uF 20% 16VW
C9	1-162-306-11	s	CERAMIC 0.01uF 20% 16VW
C10	1-162-306-11	s	CERAMIC 0.01uF 20% 16VW
C11	1-130-499-00	s	MYLAR 0.22uF 5% 50V
C12	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C13	1-215-389-00	s	METAL 47 1% 1/6W
C14	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C17	1-161-494-00	s	CERAMIC 0.022uF 25V
C18	1-162-291-31	s	CERAMIC 560PF 10% 50V
D1	8-719-109-72	s	DIODE RD3.9ESB2
IC1	8-751-870-00	s	IC CX187
IC2	8-759-972-26	s	IC LM1881N
IC3	8-759-031-92	s	IC MC14528BCP
Q1	8-729-101-37	s	TRANSISTOR 2SC2785TP-F
Q2	8-729-101-37	s	TRANSISTOR 2SC2785TP-F
Q3	8-729-101-37	s	TRANSISTOR 2SC2785TP-F
Q4	8-729-101-37	s	TRANSISTOR 2SC2785TP-F
Q5	8-719-900-36	s	TRANSISTOR DTC124ES
Q6	8-729-119-76	s	TRANSISTOR 2SA1175-HFE
Q7	8-719-900-36	s	TRANSISTOR DTC124ES
R1	1-215-453-00	s	METAL 22K 1% 1/6W
R2	1-215-447-00	s	METAL 12K 1% 1/6W
R3	1-215-397-00	s	METAL 100 1% 1/6W
R4	1-215-397-00	s	METAL 100 1% 1/6W
R5	1-215-421-00	s	METAL 1K 1% 1/6W
R6	1-215-421-00	s	METAL 1K 1% 1/6W
R7	1-215-389-00	s	METAL 47 1% 1/6W
R8	1-215-463-00	s	METAL 56K 1% 1/6W
R9	1-215-429-00	s	METAL 2.2K 1% 1/6W
R10	1-215-445-00	s	METAL 10K 1% 1/6W
R11	1-215-409-00	s	METAL 330 1% 1/6W
R12	1-215-421-00	s	METAL 1K 1% 1/6W
R13	1-215-389-00	s	METAL 47 1% 1/6W
R16	1-215-421-00	s	METAL 1K 1% 1/6W
R17	1-215-389-00	s	METAL 47 1% 1/6W
R18	1-215-479-00	s	METAL 270K 1% 1/6W
R20	1-215-445-00	s	METAL 10K 1% 1/6W
R21	1-215-453-00	s	METAL 22K 1% 1/6W
R22	1-215-437-00	s	METAL 4.7K 1% 1/6W
R23	1-215-455-00	s	METAL 27K 1% 1/6W
R24	1-215-437-00	s	METAL 4.7K 1% 1/6W
R25	1-215-445-00	s	METAL 10K 1% 1/6W
R26	1-215-421-00	s	METAL 1K 1% 1/6W
R27	1-215-437-00	s	METAL 4.7K 1% 1/6W
R28	1-215-445-00	s	METAL 10K 1% 1/6W
R30	1-215-453-00	s	METAL 22K 1% 1/6W
R31	1-215-421-00	s	METAL 1K 1% 1/6W
R32	1-215-421-00	s	METAL 1K 1% 1/6W
R33	1-215-441-00	s	METAL 6.8K 1% 1/6W
R34	1-215-445-00	s	METAL 10K 1% 1/6W
RV1	1-238-015-11	s	RES, ADJ CARBON 4.7K
RV2	1-238-015-11	s	RES, ADJ CARBON 4.7K

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

VL-5 BOARD

This Board (Part No. 1-642-141-12) is installed on the following VO-39 Board.
(J) Serial No. 10041 abd higher
(UC) Serial No. 10061 and higher
(EK) Serial No. 10041 and higher

Ref. No. or Q'ty	Part No.	SP	Description
C2	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C5	1-124-907-11	s	ELECT 10uF 20% 50V
C7	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C8	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C9	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C10	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C11	1-164-299-11	s	CERAMIC, CHIP 0.2uF 10% 25V
C12	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C13	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C14	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C15	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C16	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C17	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C19	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
CN1	1-565-897-11	o	CONNECTOR, 18P, MALE
D1	8-719-109-72	s	DIODE RD3.9ESB2
IC1	8-751-870-00	s	IC CX187
IC2	8-759-972-26	s	IC LM1881N
IC3	8-759-031-92	s	IC MC14528BCP
Q1	8-729-100-66	s	TRANSISTOR 2SC1623-L6
Q2	8-729-100-66	s	TRANSISTOR 2SC1623-L6
Q3	8-729-100-66	s	TRANSISTOR 2SC1623-L6
Q4	8-729-100-66	s	TRANSISTOR 2SC1623-L6
Q5	8-729-901-00	s	TRANSISTOR DTC124EK
Q6	8-729-122-63	s	TRANSISTOR 2SA1226-E4
Q7	8-729-901-00	s	TRANSISTOR DTC124EK
Q8	8-729-100-66	s	TRANSISTOR 2SC1623-L6
R1	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R2	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R3	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R4	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R5	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R6	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R7	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R8	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R9	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R10	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R11	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R12	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R13	1-216-693-11	s	METAL, CHIP 56K 0.5% 1/10W
R14	1-216-099-00	s	METAL, CHIP 120K 5% 1/10W
R15	1-216-111-00	s	METAL, CHIP 390K 50% 1/10W
R16	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R17	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R18	1-216-107-00	s	METAL, CHIP 270K 5% 1/10W
R19	1-216-111-00	s	METAL, CHIP 390K 5% 1/10W
R20	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R21	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R22	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R23	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R24	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R25	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R26	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R27	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R28	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R29	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
RV1	1-241-112-11	s	RES, ADJ, CARBON 4.7K

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

VO-39 BOARD

This Board (Part No. 1-640-630-11) is used for the following unit.
(J) Serial No. 10001 through 10040
(UC) Serial No. 10001 through 10060
(EK) Serial No. 10001 through 10040

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-395-A	o	MOUNTED CIRCUIT BOARD, VO-39
C2	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C3	1-124-903-11	s	ELECT 1uF 20% 50V
C7	1-124-907-11	s	ELECT 10uF 20% 50V
C9	1-107-204-91	s	MICA 12PF 5% 500
C11	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C13	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C17	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C18	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C19	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C20	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C21	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C22	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C24	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C25	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C28	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C29	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C33	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C34	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C35	1-124-907-11	s	ELECT 10uF 20% 50V
C37	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C38	1-107-077-91	s	MICA 47PF 5% 50V
C39	1-107-077-91	s	MICA 47PF 5% 50V
C40	1-107-045-00	s	MICA 3.9PF 500V
C42	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C43	1-130-499-00	s	MYLAR 0.22uF 5% 50V
C44	1-107-076-91	s	MICA 43PF 5% 50V
C45	1-109-687-00	s	MICA 390PF 5% 500V
C46	1-124-907-11	s	ELECT 10uF 20% 50V
C47	1-124-907-11	s	ELECT 10uF 20% 50V
C48	1-124-907-11	s	ELECT 10uF 20% 50V
C51	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C52	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C53	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C54	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C55	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C56	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C57	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C63	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C64	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C65	1-131-347-00	s	TANTALUM 1uF 10% 35V
C67	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C68	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C69	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C70	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C71	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C72	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C73	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C78	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C79	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C84	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C85	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C90	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V

(VO-39 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C91	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C96	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C98	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C100	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C101	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C102	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C103	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C104	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C105	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C106	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C107	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C108	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C110	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C111	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C201	1-124-360-00	s	ELECT 1000uF 20% 16V
C202	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C204	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C205	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C210	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C211	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C212	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C213	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C214	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C215	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C216	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C217	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C219	1-107-042-00	s	MICA 2.2PF 500V
C221	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C224	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C225	1-107-083-00	s	MICA 82PF 5% 50V
C227	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C229	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C230	1-130-478-00	s	MYLAR 0.0039uF 5% 50V
C231	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C232	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C235	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C237	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C238	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C239	1-126-103-11	s	ELECT 470uF 20% 16V
C240	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C241	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C242	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C244	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C246	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C247	1-107-205-91	s	MICA 13PF 5% 500V
C249	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C250	1-109-633-00	s	DIP MICA 470PF 2% 500V
C252	1-126-103-11	s	ELECT 470uF 20% 16V
C253	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C254	1-107-204-91	s	MICA 12PF 5% 500
C255	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C257	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C259	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C262	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C264	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
C268	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C270	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C271	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C273	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
C281	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C282	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C283	1-124-903-11	s	ELECT 1uF 20% 50V
C284	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C285	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C286	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C287	1-124-903-11	s	ELECT 1uF 20% 50V
C288	1-124-903-11	s	ELECT 1uF 20% 50V
C289	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C290	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C291	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C292	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C293	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C294	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C295	1-124-903-11	s	ELECT 1uF 20% 50V
C296	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C297	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C298	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C301	1-124-903-11	s	ELECT 1uF 20% 50V
C302	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C303	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C307	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C309	1-107-048-91	s	MICA 6.8PF 10% 500V
C310	1-107-048-91	s	MICA 6.8PF 10% 500V
C311	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C315	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C319	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C322	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C323	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C324	1-124-903-11	s	ELECT 1uF 20% 50V
C325	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C326	1-124-927-11	s	ELECT 4.7uF 20% 100V
C327	1-124-927-11	s	ELECT 4.7uF 20% 100V
C328	1-124-907-11	s	ELECT 10uF 20% 50V
C329	1-124-903-11	s	ELECT 1uF 20% 50V
C331	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C332	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C333	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C334	1-124-903-11	s	ELECT 1uF 20% 50V
C335	1-124-903-11	s	ELECT 1uF 20% 50V
C336	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C337	1-124-927-11	s	ELECT 4.7uF 20% 100V
C338	1-124-927-11	s	ELECT 4.7uF 20% 100V
C339	1-124-907-11	s	ELECT 10uF 20% 50V
C340	1-124-903-11	s	ELECT 1uF 20% 50V
C341	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C342	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C343	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C344	1-124-903-11	s	ELECT 1uF 20% 50V
C346	1-124-903-11	s	ELECT 1uF 20% 50V
C347	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C353	1-124-907-11	s	ELECT 10uF 20% 50V
C355	1-124-907-11	s	ELECT 10uF 20% 50V
C356	1-124-907-11	s	ELECT 10uF 20% 50V
C357	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C360	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C361	1-124-903-11	s	ELECT 1uF 20% 50V
C363	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C364	1-130-491-00	s	MYLAR 0.047uF 5% 50V

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
C371	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C375	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C381	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C382	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C386	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C387	1-124-903-11	s	ELECT 1uF 20% 50V
C389	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C390	1-130-479-00	s	MYLAR 0.0047uF 5% 50V
C391	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C393	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C394	1-107-208-00	s	MICA 18PF 5% 500V
C395	1-126-103-11	s	ELECT 470uF 20% 16V
C396	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C397	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C403	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C404	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C406	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C502	1-124-907-11	s	ELECT 10uF 20% 50V
C504	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C505	1-162-199-31	s	CERAMIC 10PF 5% 50V
C506	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C508	1-162-282-31	s	CERAMIC 100PF 10% 50V
C509	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C511	1-162-282-31	s	CERAMIC 100PF 10% 50V
C512	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C602	1-124-907-11	s	ELECT 10uF 20% 50V
C604	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C605	1-162-199-31	s	CERAMIC 10PF 5% 50V
C608	1-162-282-31	s	CERAMIC 100PF 10% 50V
C611	1-162-282-31	s	CERAMIC 100PF 10% 50V
C702	1-162-896-11	s	CERAMIC 0.01uF 10% 50V
CF1	1-527-849-00	s	FILTER, BAND-PASS 4.433619MHz
CF2	1-527-849-00	s	FILTER, BAND-PASS 4.433619MHz
CN101	1-506-471-11	s	CONNECTOR, 6P, MALE
CN153	1-506-471-11	s	CONNECTOR, 6P, MALE
CN191	1-506-471-11	s	CONNECTOR, 6P, MALE
CN175	1-560-362-00	s	CONNECTOR, 10P, MALE
CP501	1-236-010-11	s	FILTER, LOW-PASS
CP601	1-236-010-11	s	FILTER, LOW-PASS
D1	8-719-105-58	s	DIODE RD3.9M-B2
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-800-76	s	DIODE 1SS226
D5	8-719-800-76	s	DIODE 1SS226
D6	8-719-800-76	s	DIODE 1SS226
D7	8-719-800-76	s	DIODE 1SS226
D201	8-719-800-76	s	DIODE 1SS226
D202	8-719-800-76	s	DIODE 1SS226
D203	8-719-105-82	s	DIODE RD5.1M-B2
D205	8-719-800-76	s	DIODE 1SS226
D206	8-719-105-32	s	DIODE RD2.7M-B2
D207	8-719-104-10	s	DIODE 1SS99
D208	8-719-104-10	s	DIODE 1SS99
D209	8-719-800-76	s	DIODE 1SS226
D501	8-719-911-19	s	DIODE 1SS119
D502	8-719-109-93	s	DIODE RD6.2ESB2
D601	8-719-911-19	s	DIODE 1SS119

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Ref. No. or Q'ty	Part No.	SP	Description
DL201	1-415-162-31	s	DELAY LINE 50NS
DL202	1-415-162-31	s	DELAY LINE 50NS
FL1	1-239-182-11	s	FILTER, LOW-PASS
FL201	1-235-474-11	s	FILTER, LOW-PASS
FL202	1-239-181-11	s	FILTER, LOW-PASS
FL203	1-239-180-11	s	FILTER, LOW-PASS
IC1	8-759-140-11	s	IC MC14011BCP
IC2	8-759-972-26	s	IC LM1881N
IC3	8-759-031-92	s	IC MC14528BCP
IC4	8-752-006-12	s	IC CX20061
IC5	8-751-870-00	s	IC CX187
IC6	8-741-125-70	s	IC BX1257
IC7	8-759-045-84	s	IC MC14584BCP
IC8	8-759-140-11	s	IC MC14011BCP
IC9	8-759-240-71	s	IC TC4071BP
IC10	8-759-140-53	s	IC UPD4053BC
IC11	8-759-140-53	s	IC UPD4053BC
IC12	8-759-982-25	s	IC RC78L09A
IC13	8-759-400-06	s	IC AN608P
IC14	8-759-925-60	s	IC BA401
IC15	8-759-031-92	s	IC MC14528BCP
IC201	8-751-340-10	s	IC CX134A
IC202	8-741-114-03	s	IC BX-1140
IC203	8-741-124-80	s	IC BX1248
IC204	8-759-031-92	s	IC MC14528BCP
IC205	8-752-006-12	s	IC CX20061
IC206	8-759-001-16	s	IC MC10116L
IC207	8-759-982-21	s	IC RC78L05A
IC208	8-759-982-21	s	IC RC78L05A
IC209	8-759-001-98	s	IC MC10198L
IC210	8-759-972-26	s	IC LM1881N
IC211	8-759-982-21	s	IC RC78L05A
IC212	8-759-982-25	s	IC RC78L09A
IC213	8-752-321-89	s	IC CXL5003P
IC214	8-752-330-16	s	IC CXL5005P
IC215	8-759-927-56	s	IC BA7021
IC216	8-759-982-25	s	IC RC78L09A
IC217	8-759-982-21	s	IC RC78L05A
IC218	8-752-330-14	s	IC CXL1009P
IC219	8-752-330-14	s	IC CXL1009P
IC220	8-759-927-56	s	IC BA7021
IC221	8-759-925-60	s	IC BA401
IC222	8-743-880-00	s	IC BX-388
IC223	8-752-006-12	s	IC CX20061
IC224	8-759-400-06	s	IC AN608P
IC225	8-759-927-56	s	IC BA7021
IC226	8-759-140-11	s	IC MC14011BCP
IC227	8-759-040-01	s	IC MC14001BCP
IC501	8-759-981-90	s	IC NJM4558D-D
L203	1-410-087-31	s	INDUCTOR 10mH
L204	1-410-087-31	s	INDUCTOR 10mH
L205	1-410-119-11	s	INDUCTOR 1MMH
L209	1-408-425-00	s	INDUCTOR 220uH
L217	1-408-414-00	s	INDUCTOR 27uH
L230	1-408-418-00	s	INDUCTOR 56uH
L231	1-410-087-31	s	INDUCTOR 10mH
Q1	8-729-109-44	s	TRANSISTOR 2SK94

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
Q2	8-729-109-44	s	TRANSISTOR 2SK94
Q3	8-729-122-63	s	TRANSISTOR 2SA1226
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-100-66	s	TRANSISTOR 2SC1623
Q6	8-729-100-66	s	TRANSISTOR 2SC1623
Q7	8-729-122-63	s	TRANSISTOR 2SA1226
Q8	8-729-100-66	s	TRANSISTOR 2SC1623
Q9	8-729-100-66	s	TRANSISTOR 2SC1623
Q10	8-729-901-00	s	TRANSISTOR DTC124EK
Q11	8-729-100-66	s	TRANSISTOR 2SC1623
Q12	8-729-122-63	s	TRANSISTOR 2SA1226
Q13	8-729-122-63	s	TRANSISTOR 2SA1226
Q14	8-729-100-66	s	TRANSISTOR 2SC1623
Q15	8-729-100-66	s	TRANSISTOR 2SC1623
Q16	8-729-100-66	s	TRANSISTOR 2SC1623
Q17	8-729-122-63	s	TRANSISTOR 2SA1226
Q18	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q19	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q20	8-729-100-66	s	TRANSISTOR 2SC1623
Q21	8-729-901-00	s	TRANSISTOR DTC124EK
Q22	8-729-100-66	s	TRANSISTOR 2SC1623
Q23	8-729-901-00	s	TRANSISTOR DTC124EK
Q24	8-729-100-66	s	TRANSISTOR 2SC1623
Q25	8-729-901-00	s	TRANSISTOR DTC124EK
Q26	8-729-100-66	s	TRANSISTOR 2SC1623
Q27	8-729-901-00	s	TRANSISTOR DTC124EK
Q28	8-729-100-66	s	TRANSISTOR 2SC1623
Q29	8-729-100-66	s	TRANSISTOR 2SC1623
Q30	8-729-100-66	s	TRANSISTOR 2SC1623
Q31	8-729-100-66	s	TRANSISTOR 2SC1623
Q32	8-729-140-93	s	TRANSISTOR 2SB733-34
Q33	8-729-901-00	s	TRANSISTOR DTC124EK
Q34	8-729-901-00	s	TRANSISTOR DTC124EK
Q35	8-729-901-00	s	TRANSISTOR DTC124EK
Q201	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q202	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q203	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q204	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q205	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q206	8-729-202-38	s	TRANSISTOR 2SC3326N
Q208	8-729-901-00	s	TRANSISTOR DTC124EK
Q209	8-729-100-66	s	TRANSISTOR 2SC1623
Q210	8-729-901-00	s	TRANSISTOR DTC124EK
Q211	8-729-202-38	s	TRANSISTOR 2SC3326N
Q212	8-729-122-63	s	TRANSISTOR 2SA1226
Q213	8-729-122-63	s	TRANSISTOR 2SA1226
Q214	8-729-100-66	s	TRANSISTOR 2SC1623
Q215	8-729-122-63	s	TRANSISTOR 2SA1226
Q216	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q217	8-729-202-38	s	TRANSISTOR 2SC3326N
Q219	8-729-901-00	s	TRANSISTOR DTC124EK
Q220	8-729-122-63	s	TRANSISTOR 2SA1226
Q221	8-729-100-66	s	TRANSISTOR 2SC1623
Q222	8-729-100-66	s	TRANSISTOR 2SC1623
Q223	8-729-100-66	s	TRANSISTOR 2SC1623
Q224	8-729-100-66	s	TRANSISTOR 2SC1623
Q225	8-729-100-66	s	TRANSISTOR 2SC1623
Q226	8-729-901-00	s	TRANSISTOR DTC124EK
Q227	8-729-122-63	s	TRANSISTOR 2SA1226

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Ref. No. or Q'ty	Part No.	SP	Description
Q228	8-729-100-66	s	TRANSISTOR 2SC1623
Q229	8-729-100-66	s	TRANSISTOR 2SC1623
Q230	8-729-100-66	s	TRANSISTOR 2SC1623
Q231	8-729-901-00	s	TRANSISTOR DTC124EK
Q232	8-729-100-66	s	TRANSISTOR 2SC1623
Q233	8-729-100-66	s	TRANSISTOR 2SC1623
Q234	8-729-122-63	s	TRANSISTOR 2SA1226
Q235	8-729-122-63	s	TRANSISTOR 2SA1226
Q236	8-729-100-66	s	TRANSISTOR 2SC1623
Q237	8-729-100-66	s	TRANSISTOR 2SC1623
Q238	8-729-122-63	s	TRANSISTOR 2SA1226
Q239	8-729-901-00	s	TRANSISTOR DTC124EK
Q240	8-729-901-05	s	TRANSISTOR DTA124EK
Q241	8-729-100-66	s	TRANSISTOR 2SC1623
Q242	8-729-100-66	s	TRANSISTOR 2SC1623
Q244	8-729-100-66	s	TRANSISTOR 2SC1623
Q245	8-729-100-66	s	TRANSISTOR 2SC1623
Q246	8-729-122-63	s	TRANSISTOR 2SA1226
Q247	8-729-122-63	s	TRANSISTOR 2SA1226
Q248	8-729-122-63	s	TRANSISTOR 2SA1226
Q249	8-729-901-00	s	TRANSISTOR DTC124EK
Q250	8-729-100-66	s	TRANSISTOR 2SC1623
Q251	8-729-100-66	s	TRANSISTOR 2SC1623
Q252	8-729-100-66	s	TRANSISTOR 2SC1623
Q253	8-729-100-66	s	TRANSISTOR 2SC1623
Q254	8-729-122-63	s	TRANSISTOR 2SA1226
Q255	8-729-100-66	s	TRANSISTOR 2SC1623
Q256	8-729-202-38	s	TRANSISTOR 2SC3326N
Q257	8-729-100-66	s	TRANSISTOR 2SC1623
Q258	8-729-901-00	s	TRANSISTOR DTC124EK
Q259	8-729-901-00	s	TRANSISTOR DTC124EK
Q260	8-729-901-00	s	TRANSISTOR DTC124EK
Q261	8-729-100-66	s	TRANSISTOR 2SC1623
Q262	8-729-100-66	s	TRANSISTOR 2SC1623
Q263	8-729-122-63	s	TRANSISTOR 2SA1226
Q264	8-729-100-66	s	TRANSISTOR 2SC1623
Q265	8-729-100-66	s	TRANSISTOR 2SC1623
Q266	8-729-100-66	s	TRANSISTOR 2SC1623
Q267	8-729-100-66	s	TRANSISTOR 2SC1623
Q268	8-729-100-66	s	TRANSISTOR 2SC1623
Q269	8-729-100-66	s	TRANSISTOR 2SC1623
Q270	8-729-100-66	s	TRANSISTOR 2SC1623
Q271	8-729-100-66	s	TRANSISTOR 2SC1623
Q272	8-729-100-66	s	TRANSISTOR 2SC1623
Q273	8-729-100-66	s	TRANSISTOR 2SC1623
Q501	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q601	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
R1	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R2	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R3	1-216-266-00	s	METAL 680 0.5% 1/10W
R4	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R5	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R6	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R7	1-216-101-00	s	METAL, CHIP 150K 5% 1/10W
R8	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R9	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R10	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R11	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
R12	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R13	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R14	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R15	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R16	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R17	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R18	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R19	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R20	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R21	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R22	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R23	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R24	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R25	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R26	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R27	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R28	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R29	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R30	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R31	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R32	1-216-119-00	s	METAL, CHIP 820K 5% 1/10W
R33	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R34	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R35	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R36	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R37	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R38	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R39	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R40	1-218-762-91	s	METAL 270K 0.5% 1/10W
R41	1-218-766-11	s	METAL 390K 0.5% 1/10W
R42	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R43	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R44	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R45	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R46	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R47	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R48	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R49	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R50	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R51	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R52	1-216-693-11	s	METAL, CHIP 56K 0.5% 1/10W
R53	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R54	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R55	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R56	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R57	1-216-634-11	s	METAL, CHIP 200 0.5% 1/10W
R58	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R59	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R60	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R61	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R62	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R63	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R64	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R65	1-216-607-11	s	METAL CHIP 15 0.50% 1/10W
R66	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
R67	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R68	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R69	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R70	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R71	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R72	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R73	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R74	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R75	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R76	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R77	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R78	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R79	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R80	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R81	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R82	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R83	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R84	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R85	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R86	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R87	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R88	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R89	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R90	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R91	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
R92	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R93	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R94	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R95	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R96	1-216-295-00	s	METAL, CHIP 0-OHM
R97	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R98	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R99	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R100	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R101	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R102	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R103	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R104	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R105	1-216-103-00	s	METAL, CHIP 180K 5% 1/10W
R106	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R107	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R108	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R109	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R110	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R111	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R112	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R113	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R114	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R115	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R116	1-216-109-00	s	METAL, CHIP 330K 5% 1/10W
R117	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R118	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R119	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R120	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R121	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R122	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R123	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R124	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R125	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R126	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R127	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R128	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R129	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R130	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R131	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R132	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R133	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R134	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R135	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R136	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R137	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R138	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R139	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R140	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R141	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R142	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R143	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R144	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R145	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R146	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R147	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R148	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R149	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R150	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R151	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R152	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R153	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R154	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R155	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R156	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R157	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R158	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R159	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R160	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R161	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R162	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R163	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R164	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R165	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R166	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R167	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R168	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R169	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R201	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R202	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R203	1-216-668-11	s	METAL, CHIP 5.1K 0.5% 1/10W
R204	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R205	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R206	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R207	⚠1-212-853-00	s	RES, FUSIBLE 6.8 5% 1/4W
R208	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R209	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R210	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R211	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R212	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R213	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R214	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R215	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R216	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R217	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R218	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R219	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
R220	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R221	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R222	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R224	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R225	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R226	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R227	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R228	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R229	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R230	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R231	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R232	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R233	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R235	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R236	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R237	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R238	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R239	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R240	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R241	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R242	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R243	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R244	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R245	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R246	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R247	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R248	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R249	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R250	1-216-650-11	s	METAL, CHIP 910 0.5% 1/10W
R251	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R252	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R253	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R254	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R255	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R256	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R257	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R258	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R259	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R260	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R261	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R262	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R263	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R264	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R265	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R266	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R267	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R268	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R269	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R270	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R271	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R272	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R273	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R274	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R275	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R276	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R277	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R278	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R279	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R281	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
R282	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R283	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R284	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R285	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R286	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R287	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R288	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R289	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R291	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R292	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R293	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R294	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R295	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R296	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R297	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R298	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R299	1-216-295-00	s	METAL, CHIP 0-OHM
R300	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R301	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
R302	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R303	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R304	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R305	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R306	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R307	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R308	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R309	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R310	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R311	1-216-693-11	s	METAL, CHIP 56K 0.5% 1/10W
R312	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R313	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R314	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R315	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R316	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R317	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R318	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R319	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R320	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R321	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R322	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R323	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R324	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R325	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R326	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R327	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R328	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R329	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R330	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R331	1-216-295-00	s	METAL, CHIP 0-OHM
R332	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R333	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R334	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
R335	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R336	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R337	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R338	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R339	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R340	1-216-295-00	s	METAL, CHIP 0-OHM
R341	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R342	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R343	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R344	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R345	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R346	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R347	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R348	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R349	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R350	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R351	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R352	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R353	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R354	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R355	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R356	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R357	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R358	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R359	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R360	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R361	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R362	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R363	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R364	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R365	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R366	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R367	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R368	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R369	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R370	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R371	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R372	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R373	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R374	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R375	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R376	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R377	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R378	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R379	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R380	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R381	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R382	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R383	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R384	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R385	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R386	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R387	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R388	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R389	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R390	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R391	1-216-266-00	s	METAL 680 0.5% 1/10W
R392	1-216-266-00	s	METAL 680 0.5% 1/10W
R393	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R394	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R395	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R396	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R397	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R398	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R399	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R400	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R401	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R402	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R403	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R404	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R405	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R406	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R407	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R408	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R409	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R410	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R411	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R412	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R413	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R414	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R415	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R416	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R417	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R418	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R419	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R420	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R421	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R422	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R423	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R424	1-216-099-00	s	METAL, CHIP 120K 5% 1/10W
R425	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R426	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R427	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R428	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R429	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R430	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R431	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R432	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R433	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R434	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R435	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R436	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R437	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R438	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R439	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R440	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R441	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R442	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R443	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R444	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R445	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R446	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R447	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R448	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R449	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R450	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R451	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R452	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R453	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R454	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R455	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R456	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R457	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R458	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R459	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
R460	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R461	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R462	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R463	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R464	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R507	1-247-883-00	s	CARBON 150K 5% 1/4W
R607	1-247-883-00	s	CARBON 150K 5% 1/4W
R703	1-215-469-00	s	METAL 100K 1% 1/6W
RV1	1-238-017-11	s	RES, ADJ CARBON 22K
RV2	1-238-015-11	s	RES, ADJ CARBON 4.7K
RV3	1-238-011-11	s	RES, ADJ CARBON 470
RV4	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV5	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV6	1-238-017-11	s	RES, ADJ CARBON 22K
RV201	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV202	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV203	1-238-012-11	s	RES, ADJ CARBON 1K
RV204	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV205	1-238-015-11	s	RES, ADJ CARBON 4.7K
RV206	1-238-017-11	s	RES, ADJ CARBON 22K
RV207	1-238-016-11	s	RES, ADJ CARBON 10K
RV208	1-238-009-11	s	RES, ADJ CARBON 220
RV209	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV210	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV212	1-238-012-11	s	RES, ADJ CARBON 1K
RV213	1-238-012-11	s	RES, ADJ CARBON 1K
RV214	1-238-017-11	s	RES, ADJ CARBON 22K
RV215	1-238-012-11	s	RES, ADJ CARBON 1K
RV216	1-238-011-11	s	RES, ADJ CARBON 470
RV217	1-238-017-11	s	RES, ADJ CARBON 22K
RV219	1-238-012-11	s	RES, ADJ CARBON 1K
RV220	1-238-011-11	s	RES, ADJ CARBON 470
RV221	1-238-012-11	s	RES, ADJ CARBON 1K
S101	1-552-509-00	s	SWITCH, DIP 1-CKT
S201	1-552-509-00	s	SWITCH, DIP 1-CKT
X1	1-567-860-11	s	CRYSTAL, 4.433618MHz
X2	1-567-859-11	s	CRYSTAL, 3.579545MHz
X3	1-579-481-11	s	CRYSTAL 3.835227MHz
X4	1-579-480-11	s	CRYSTAL 3.48799MHz
X201	1-577-234-11	s	CRYSTAL 19.6608MHz
X202	1-577-076-11	s	CRYSTAL, 16.000MHz

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

VO-39 BOARD

Ref. No.
or Q'ty Part No. SP Description

This Board (Part No. 1-640-630-12) is used for the following unit.
(J) Serial No. 10041 and higher
(UC) Serial No. 10061 and higher
(EK) Serial No. 10041 and higher

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-395-A	o	MOUNTED CIRCUIT BOARD, VO-39
C2	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C3	1-124-903-11	s	ELECT 1uF 20% 50V
C7	1-124-907-11	s	ELECT 10uF 20% 50V
C9	1-107-204-91	s	MICA 12PF 5% 500
C11	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C13	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C17	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C18	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C19	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C20	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C21	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C22	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C24	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C28	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C29	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C33	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C34	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C35	1-124-907-11	s	ELECT 10uF 20% 50V
C37	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C38	1-107-077-91	s	MICA 47PF 5% 50V
C39	1-107-077-91	s	MICA 47PF 5% 50V
C40	1-107-045-00	s	MICA 3.9PF 500V
C42	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C43	1-130-499-00	s	MYLAR 0.22uF 5% 50V
C44	1-107-076-91	s	MICA 43PF 5% 50V
C45	1-109-687-00	s	MICA 390PF 5% 500V
C46	1-124-907-11	s	ELECT 10uF 20% 50V
C47	1-124-907-11	s	ELECT 10uF 20% 50V
C48	1-124-907-11	s	ELECT 10uF 20% 50V
C51	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C52	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C53	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C54	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C55	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C56	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C57	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C63	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C64	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C65	1-131-347-00	s	TANTALUM 1uF 10% 35V
C67	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C68	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C69	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C70	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C71	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C72	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C73	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C76	1-107-208-00	s	MICA 18PF 5% 50V
C78	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C79	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C82	1-107-208-00	s	MICA 18PF 5% 50V
C84	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C85	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V

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Ref. No. or Q'ty	Part No.	SP	Description
C88	1-107-208-00	s	MICA 18PF 5% 50V
C90	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C91	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C94	1-107-208-00	s	MICA 18PF 5% 50V
C96	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C98	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C100	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C101	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C102	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C103	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C104	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C105	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C106	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C107	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C108	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C110	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C111	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C201	1-124-360-00	s	ELECT 1000uF 20% 16V
C202	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C204	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C205	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C210	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C211	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C212	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C213	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C214	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C215	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C216	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C217	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C219	1-107-042-00	s	MICA 2.2PF 500V
C221	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C224	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C225	1-107-083-00	s	MICA 82PF 5% 50V
C227	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C229	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C230	1-130-478-00	s	MYLAR 0.0039uF 5% 50V
C231	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C232	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C235	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C237	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C238	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C239	1-126-103-11	s	ELECT 470uF 20% 16V
C240	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C241	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C242	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C244	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C246	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C247	1-107-206-00	s	MICA 15PF 5% 500V
C249	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C250	1-109-633-00	s	DIP MICA 470PF 2% 500V
C252	1-126-103-11	s	ELECT 470uF 20% 16V
C253	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C254	1-107-204-91	s	MICA 12PF 5% 500
C255	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C257	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C259	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C262	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C264	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
C268	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
C270	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C271	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C273	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C281	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C282	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C283	1-124-903-11	s	ELECT 1uF 20% 50V
C284	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C285	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C286	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C287	1-124-903-11	s	ELECT 1uF 20% 50V
C288	1-124-903-11	s	ELECT 1uF 20% 50V
C289	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C290	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C291	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C292	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C293	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C294	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C295	1-124-903-11	s	ELECT 1uF 20% 50V
C296	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C297	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C298	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C301	1-124-903-11	s	ELECT 1uF 20% 50V
C302	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C303	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C307	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C309	1-107-048-91	s	MICA 6.8PF 10% 500V
C310	1-107-048-91	s	MICA 6.8PF 10% 500V
C311	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C315	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C319	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C322	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C323	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C324	1-124-903-11	s	ELECT 1uF 20% 50V
C325	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C326	1-124-927-11	s	ELECT 4.7uF 20% 100V
C327	1-124-927-11	s	ELECT 4.7uF 20% 100V
C328	1-124-907-11	s	ELECT 10uF 20% 50V
C329	1-124-903-11	s	ELECT 1uF 20% 50V
C331	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C332	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C333	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C334	1-124-903-11	s	ELECT 1uF 20% 50V
C335	1-124-903-11	s	ELECT 1uF 20% 50V
C336	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C337	1-124-927-11	s	ELECT 4.7uF 20% 100V
C338	1-124-927-11	s	ELECT 4.7uF 20% 100V
C339	1-124-907-11	s	ELECT 10uF 20% 50V
C340	1-124-903-11	s	ELECT 1uF 20% 50V
C341	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C342	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C343	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C344	1-124-903-11	s	ELECT 1uF 20% 50V
C346	1-124-903-11	s	ELECT 1uF 20% 50V
C347	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C353	1-124-907-11	s	ELECT 10uF 20% 50V
C355	1-124-907-11	s	ELECT 10uF 20% 50V
C356	1-124-907-11	s	ELECT 10uF 20% 50V
C357	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C360	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V

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Ref. No. or Q'ty	Part No.	SP	Description
C361	1-124-903-11	s	ELECT 1uF 20% 50V
C363	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C364	1-130-491-00	s	MYLAR 0.047uF 5% 50V
C371	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C375	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C381	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C382	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C386	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C387	1-124-903-11	s	ELECT 1uF 20% 50V
C389	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C390	1-130-479-00	s	MYLAR 0.0047uF 5% 50V
C391	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C393	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C394	1-107-208-00	s	MICA 18PF 5% 500V
C395	1-126-103-11	s	ELECT 470uF 20% 16V
C396	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C397	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C401	1-124-927-SS	s	ELECT 4.7uF 20% 100V
C402	1-163-037-11	s	CERAMIC, CHIP 0.0022uF 10% 25V
C403	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C404	1-163-021-91	s	CERAMIC, CHIP 0.01uF 10% 50V
C405	1-163-037-11	s	CERAMIC, CHIP 0.0022uF 10% 25V
C406	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C407	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C408	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C409	1-163-037-11	s	CERAMIC, CHIP 0.0022uF 10% 25V
C502	1-124-907-11	s	ELECT 10uF 20% 50V
C504	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C505	1-162-199-31	s	CERAMIC 10PF 5% 50V
C506	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C508	1-162-282-31	s	CERAMIC 100PF 10% 50V
C509	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C511	1-162-282-31	s	CERAMIC 100PF 10% 50V
C512	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C602	1-124-907-11	s	ELECT 10uF 20% 50V
C604	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C605	1-162-199-31	s	CERAMIC 10PF 5% 50V
C608	1-162-282-31	s	CERAMIC 100PF 10% 50V
C611	1-162-282-31	s	CERAMIC 100PF 10% 50V
CF1	1-527-849-00	s	FILTER, BAND-PASS 4.433619MHz
CF2	1-527-849-00	s	FILTER, BAND-PASS 4.433619MHz
CN101	1-506-471-11	s	CONNECTOR, 6P, MALE
CN153	1-506-471-11	s	CONNECTOR, 6P, MALE
CN191	1-506-471-11	s	CONNECTOR, 6P, MALE
CN175	1-560-362-00	s	CONNECTOR, 10P, MALE
CP501	1-236-010-11	s	FILTER, LOW-PASS
CP601	1-236-010-11	s	FILTER, LOW-PASS
D1	8-719-105-58	s	DIODE RD3.9M-B2
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-800-76	s	DIODE 1SS226
D4	8-719-800-76	s	DIODE 1SS226
D5	8-719-800-76	s	DIODE 1SS226
D6	8-719-800-76	s	DIODE 1SS226
D7	8-719-800-76	s	DIODE 1SS226
D8	8-719-400-18	s	DIODE MA152WK
D201	8-719-800-76	s	DIODE 1SS226
D202	8-719-800-76	s	DIODE 1SS226

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Ref. No. or Q'ty	Part No.	SP	Description
D203	8-719-105-82	s	DIODE RD5.1M-B2
D205	8-719-800-76	s	DIODE 1SS226
D206	8-719-105-32	s	DIODE RD2.7M-B2
D207	8-719-104-10	s	DIODE 1SS99
D208	8-719-104-10	s	DIODE 1SS99
D209	8-719-800-76	s	DIODE 1SS226
D501	8-719-911-19	s	DIODE 1SS119
D502	8-719-109-93	s	DIODE RD6.2ESB2
D601	8-719-911-19	s	DIODE 1SS119
DL201	1-415-162-31	s	DELAY LINE 50NS
DL202	1-415-162-31	s	DELAY LINE 50NS
FL1	1-239-182-11	s	FILTER, LOW-PASS
FL201	1-235-474-11	s	FILTER, LOW-PASS
FL202	1-239-181-11	s	FILTER, LOW-PASS
FL203	1-239-180-11	s	FILTER, LOW-PASS
IC1	8-759-140-11	s	IC MC14011BCP
IC2	8-759-972-26	s	IC LM1881N
IC3	8-759-031-92	s	IC MC14528BCP
IC4	8-752-006-12	s	IC CX20061
IC5	8-751-870-00	s	IC CX187
IC6	8-741-125-70	s	IC BX1257
IC7	8-759-045-84	s	IC MC14584BCP
IC8	8-759-140-11	s	IC MC14011BCP
IC9	8-759-240-71	s	IC TC4071BP
IC10	8-759-140-53	s	IC UPD4053BC
IC11	8-759-140-53	s	IC UPD4053BC
IC12	8-759-982-25	s	IC RC78L09A
IC13	8-759-400-06	s	IC AN608P
IC14	8-759-925-60	s	IC BA401
IC15	8-759-031-92	s	IC MC14528BCP
IC201	8-751-340-10	s	IC CX134A
IC202	8-741-114-03	s	IC BX-1140
IC203	8-741-124-80	s	IC BX1248
IC204	8-759-031-92	s	IC MC14528BCP
IC205	8-752-006-12	s	IC CX20061
IC206	8-759-001-16	s	IC MC10116L
IC207	8-759-982-21	s	IC RC78L05A
IC208	8-759-982-21	s	IC RC78L05A
IC209	8-759-001-98	s	IC MC10198L
IC210	8-759-972-26	s	IC LM1881N
IC211	8-759-982-21	s	IC RC78L05A
IC212	8-759-982-25	s	IC RC78L09A
IC213	8-752-321-89	s	IC CXL5003P
IC214	8-752-330-16	s	IC CXL5005P
IC215	8-759-927-56	s	IC BA7021
IC216	8-759-982-25	s	IC RC78L09A
IC217	8-759-982-21	s	IC RC78L05A
IC218	8-752-330-14	s	IC CXL1009P
IC219	8-752-330-14	s	IC CXL1009P
IC220	8-759-927-56	s	IC BA7021
IC221	8-759-925-60	s	IC BA401
IC222	8-743-880-00	s	IC BX-388
IC223	8-752-006-12	s	IC CX20061
IC224	8-759-400-06	s	IC AN608P
IC225	8-759-927-56	s	IC BA7021
IC226	8-759-140-11	s	IC MC14011BCP
IC227	8-759-040-01	s	IC MC14001BCP
IC501	8-759-981-90	s	IC NJM4558D-D

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
L203	1-410-087-31	s	INDUCTOR 10mH
L204	1-410-087-31	s	INDUCTOR 10mH
L205	1-410-119-11	s	INDUCTOR 1MMH
L209	1-408-425-00	s	INDUCTOR 220uH
L217	1-408-414-00	s	INDUCTOR 27uH
L230	1-408-418-00	s	INDUCTOR 56uH
L231	1-410-087-31	s	INDUCTOR 10mH
Q1	8-729-109-44	s	TRANSISTOR 2SK94
Q2	8-729-109-44	s	TRANSISTOR 2SK94
Q3	8-729-122-63	s	TRANSISTOR 2SA1226
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-100-66	s	TRANSISTOR 2SC1623
Q6	8-729-100-66	s	TRANSISTOR 2SC1623
Q7	8-729-122-63	s	TRANSISTOR 2SA1226
Q8	8-729-100-66	s	TRANSISTOR 2SC1623
Q9	8-729-100-66	s	TRANSISTOR 2SC1623
Q10	8-729-901-00	s	TRANSISTOR DTC124EK
Q11	8-729-100-66	s	TRANSISTOR 2SC1623
Q12	8-729-122-63	s	TRANSISTOR 2SA1226
Q13	8-729-122-63	s	TRANSISTOR 2SA1226
Q14	8-729-100-66	s	TRANSISTOR 2SC1623
Q15	8-729-100-66	s	TRANSISTOR 2SC1623
Q16	8-729-100-66	s	TRANSISTOR 2SC1623
Q17	8-729-122-63	s	TRANSISTOR 2SA1226
Q18	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q19	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q20	8-729-100-66	s	TRANSISTOR 2SC1623
Q21	8-729-901-00	s	TRANSISTOR DTC124EK
Q22	8-729-100-66	s	TRANSISTOR 2SC1623
Q23	8-729-901-00	s	TRANSISTOR DTC124EK
Q24	8-729-100-66	s	TRANSISTOR 2SC1623
Q25	8-729-901-00	s	TRANSISTOR DTC124EK
Q26	8-729-100-66	s	TRANSISTOR 2SC1623
Q27	8-729-901-00	s	TRANSISTOR DTC124EK
Q28	8-729-100-66	s	TRANSISTOR 2SC1623
Q29	8-729-100-66	s	TRANSISTOR 2SC1623
Q30	8-729-100-66	s	TRANSISTOR 2SC1623
Q31	8-729-100-66	s	TRANSISTOR 2SC1623
Q32	8-729-140-93	s	TRANSISTOR 2SB733-34
Q33	8-729-901-00	s	TRANSISTOR DTC124EK
Q34	8-729-901-00	s	TRANSISTOR DTC124EK
Q35	8-729-901-00	s	TRANSISTOR DTC124EK
Q201	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q202	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q203	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q204	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q205	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q206	8-729-202-38	s	TRANSISTOR 2SC3326N
Q208	8-729-901-00	s	TRANSISTOR DTC124EK
Q209	8-729-100-66	s	TRANSISTOR 2SC1623
Q210	8-729-901-00	s	TRANSISTOR DTC124EK
Q211	8-729-202-38	s	TRANSISTOR 2SC3326N
Q212	8-729-122-63	s	TRANSISTOR 2SA1226
Q213	8-729-122-63	s	TRANSISTOR 2SA1226
Q214	8-729-100-66	s	TRANSISTOR 2SC1623
Q215	8-729-122-63	s	TRANSISTOR 2SA1226
Q216	8-729-102-07	s	TRANSISTOR 2SC2223-F13

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Ref. No. or Q'ty	Part No.	SP	Description
Q217	8-729-202-38	s	TRANSISTOR 2SC3326N
Q219	8-729-901-00	s	TRANSISTOR DTC124EK
Q220	8-729-122-63	s	TRANSISTOR 2SA1226
Q221	8-729-100-66	s	TRANSISTOR 2SC1623
Q222	8-729-100-66	s	TRANSISTOR 2SC1623
Q223	8-729-100-66	s	TRANSISTOR 2SC1623
Q224	8-729-100-66	s	TRANSISTOR 2SC1623
Q225	8-729-100-66	s	TRANSISTOR 2SC1623
Q226	8-729-901-00	s	TRANSISTOR DTC124EK
Q227	8-729-122-63	s	TRANSISTOR 2SA1226
Q228	8-729-100-66	s	TRANSISTOR 2SC1623
Q229	8-729-100-66	s	TRANSISTOR 2SC1623
Q230	8-729-100-66	s	TRANSISTOR 2SC1623
Q231	8-729-901-00	s	TRANSISTOR DTC124EK
Q232	8-729-100-66	s	TRANSISTOR 2SC1623
Q233	8-729-100-66	s	TRANSISTOR 2SC1623
Q234	8-729-122-63	s	TRANSISTOR 2SA1226
Q235	8-729-122-63	s	TRANSISTOR 2SA1226
Q236	8-729-100-66	s	TRANSISTOR 2SC1623
Q237	8-729-100-66	s	TRANSISTOR 2SC1623
Q238	8-729-122-63	s	TRANSISTOR 2SA1226
Q239	8-729-901-00	s	TRANSISTOR DTC124EK
Q240	8-729-901-05	s	TRANSISTOR DTA124EK
Q241	8-729-100-66	s	TRANSISTOR 2SC1623
Q242	8-729-100-66	s	TRANSISTOR 2SC1623
Q244	8-729-100-66	s	TRANSISTOR 2SC1623
Q245	8-729-100-66	s	TRANSISTOR 2SC1623
Q246	8-729-122-63	s	TRANSISTOR 2SA1226
Q247	8-729-122-63	s	TRANSISTOR 2SA1226
Q248	8-729-122-63	s	TRANSISTOR 2SA1226
Q249	8-729-901-00	s	TRANSISTOR DTC124EK
Q250	8-729-100-66	s	TRANSISTOR 2SC1623
Q251	8-729-100-66	s	TRANSISTOR 2SC1623
Q252	8-729-100-66	s	TRANSISTOR 2SC1623
Q253	8-729-100-66	s	TRANSISTOR 2SC1623
Q254	8-729-122-63	s	TRANSISTOR 2SA1226
Q255	8-729-100-66	s	TRANSISTOR 2SC1623
Q256	8-729-202-38	s	TRANSISTOR 2SC3326N
Q257	8-729-100-66	s	TRANSISTOR 2SC1623
Q258	8-729-901-00	s	TRANSISTOR DTC124EK
Q259	8-729-901-00	s	TRANSISTOR DTC124EK
Q260	8-729-901-00	s	TRANSISTOR DTC124EK
Q261	8-729-100-66	s	TRANSISTOR 2SC1623
Q262	8-729-100-66	s	TRANSISTOR 2SC1623
Q263	8-729-122-63	s	TRANSISTOR 2SA1226
Q264	8-729-100-66	s	TRANSISTOR 2SC1623
Q265	8-729-100-66	s	TRANSISTOR 2SC1623
Q266	8-729-100-66	s	TRANSISTOR 2SC1623
Q267	8-729-100-66	s	TRANSISTOR 2SC1623
Q268	8-729-100-66	s	TRANSISTOR 2SC1623
Q269	8-729-100-66	s	TRANSISTOR 2SC1623
Q270	8-729-100-66	s	TRANSISTOR 2SC1623
Q271	8-729-100-66	s	TRANSISTOR 2SC1623
Q272	8-729-100-66	s	TRANSISTOR 2SC1623
Q273	8-729-100-66	s	TRANSISTOR 2SC1623
Q501	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q601	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
R1	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
R2	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R3	1-216-266-00	s	METAL 680 0.5% 1/10W
R4	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R5	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R6	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R7	1-216-101-00	s	METAL, CHIP 150K 5% 1/10W
R8	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R9	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R10	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R11	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R12	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R13	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R14	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R15	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R16	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R17	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R18	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R19	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R20	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R21	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R22	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R23	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R24	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R25	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R26	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R27	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R28	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R29	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R30	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R31	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R32	1-216-119-00	s	METAL, CHIP 820K 5% 1/10W
R33	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R34	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R35	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R36	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R37	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R38	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R39	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R40	1-218-762-91	s	METAL 270K 0.5% 1/10W
R41	1-218-766-11	s	METAL 390K 0.5% 1/10W
R42	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R43	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R45	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R46	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
R47	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R48	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R49	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R50	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R51	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R52	1-216-693-11	s	METAL, CHIP 56K 0.5% 1/10W
R53	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R54	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R55	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R56	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R57	1-216-634-11	s	METAL, CHIP 200 0.5% 1/10W
R58	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R59	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R60	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R61	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R62	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R63	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R64	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R65	1-216-607-11	s	METAL CHIP 15 0.50% 1/10W
R66	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
R67	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R68	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R69	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R70	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R71	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R72	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R73	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R74	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R75	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R76	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R77	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R78	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R79	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R80	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R81	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R82	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R83	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R84	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R85	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R86	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R87	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R88	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R89	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R90	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R91	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
R92	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R93	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R94	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R95	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R96	1-216-295-00	s	METAL, CHIP 0-OHM
R97	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R98	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R99	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R100	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R101	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R102	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R103	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R104	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R105	1-216-103-00	s	METAL, CHIP 180K 5% 1/10W
R106	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R107	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R108	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R109	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R110	1-216-667-11	s	METAL, CHIP 3.6K 0.5% 1/10W
R111	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R112	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R113	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R114	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R115	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R116	1-216-109-00	s	METAL, CHIP 330K 5% 1/10W
R117	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R118	1-216-671-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R119	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R120	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
R121	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R122	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R123	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R124	1-216-671-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R125	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R126	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R127	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R128	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R129	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R130	1-216-671-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R131	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R132	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R133	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R134	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R135	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R136	1-216-671-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R137	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R138	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R139	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R140	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R141	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R142	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R143	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R144	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R145	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R146	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R147	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R148	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R149	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R150	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R151	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R152	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R153	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R154	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R155	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R156	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R157	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R158	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R159	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R160	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R161	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R162	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R163	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R164	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R165	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R166	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R167	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R168	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R169	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R201	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R202	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R203	1-216-668-11	s	METAL, CHIP 5.1K 0.5% 1/10W
R204	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R205	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R206	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R207	⚠1-212-853-00	s	RES, FUSIBLE 6.8 5% 1/4W
R208	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R209	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R210	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R211	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R212	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R213	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R214	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R215	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R216	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R217	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R218	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R219	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R220	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R221	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R222	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R224	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R225	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R226	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R227	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R228	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R229	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R230	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R231	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R232	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R233	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R235	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R236	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R237	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R238	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R239	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R240	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R241	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R242	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R243	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R244	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R245	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R246	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R247	1-216-109-00	s	METAL, CHIP 330K 5% 1/10W
R248	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R249	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R250	1-216-650-11	s	METAL, CHIP 910 0.5% 1/10W
R251	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R252	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R253	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R254	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R255	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R256	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R257	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R258	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R259	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R260	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R261	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R262	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R263	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R264	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R265	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R266	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R267	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R268	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R269	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R270	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R271	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
R272	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R273	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R274	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R275	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R276	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R277	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R278	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R279	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R281	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R282	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R283	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R284	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R285	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R286	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R287	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R288	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R289	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R290	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R291	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R292	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R293	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R294	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R295	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R296	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R297	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R298	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R299	1-216-295-00	s	METAL, CHIP 0-OHM
R300	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R301	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
R302	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R303	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R304	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R305	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R306	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R307	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R308	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R309	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R310	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R311	1-216-693-11	s	METAL, CHIP 56K 0.5% 1/10W
R312	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R313	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R314	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R315	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R316	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R317	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R318	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R319	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R320	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R321	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R322	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R323	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R324	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R325	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R326	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R327	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R328	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R329	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R330	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R331	1-216-295-00	s	METAL, CHIP 0-OHM

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Ref. No. or Q'ty	Part No.	SP	Description
R332	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R333	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R334	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
R335	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R336	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R337	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R338	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R339	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R340	1-216-295-00	s	METAL, CHIP 0-OHM
R341	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R342	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R343	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R344	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R345	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R346	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R347	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R348	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R349	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R350	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R351	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R352	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R353	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R354	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R355	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R356	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R357	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R358	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R359	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R360	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R361	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R362	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R363	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R364	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R365	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R366	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R367	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R368	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R369	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R370	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R371	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R372	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R373	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R374	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R375	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R376	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R377	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R378	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R379	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R380	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R381	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R382	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R383	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R384	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R385	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R386	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R387	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R388	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R389	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R390	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
R391	1-216-266-00	s	METAL 680 0.5% 1/10W
R392	1-216-266-00	s	METAL 680 0.5% 1/10W
R393	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R394	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R395	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R396	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R397	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R398	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R399	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R400	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R401	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R402	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R403	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R404	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R405	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R406	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R407	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R408	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R409	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R410	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R411	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R412	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R413	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R414	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R415	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R416	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R417	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R418	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R419	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R420	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R421	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R422	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R423	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R424	1-216-099-00	s	METAL, CHIP 120K 5% 1/10W
R425	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R426	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R427	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R428	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R429	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R430	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R431	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R432	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R433	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R434	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R435	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R436	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R437	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R438	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R439	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R440	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R441	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R442	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R443	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R444	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R445	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R446	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R447	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R448	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R449	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R450	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R451	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R452	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R453	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R454	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R455	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R456	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R457	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R458	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R459	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R460	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R461	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R462	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R463	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R464	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R466	1-216-655 11	s	METAL, CHIP 200 0.5% 1/10W
R467	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R468	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R469	1-216-627-91	s	METAL, CHIP 100 0.5% 1/10W
R470	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R471	1-216-675-SS	s	METAL, CHIP 10K 0.5% 1/10W
R472	1-216-655-11	s	METAL, CHIP 1.3K 0.5% 1/10W
R473	1-216-671-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R474	1-216-675-SS	s	METAL, CHIP 10K 0.5% 1/10W
R475	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R507	1-247-883-00	s	CARBON 150K 5% 1/4W
R607	1-247-883-00	s	CARBON 150K 5% 1/4W
R701	1-215-421-00	s	METAL 1K 1% 1/6W
R702	1-215-421-00	s	METAL 1K 1% 1/6W
RV1	1-238-017-11	s	RES, ADJ CARBON 22K
RV2	1-238-015-11	s	RES, ADJ CARBON 4.7K
RV3	1-238-011-11	s	RES, ADJ CARBON 470
RV4	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV5	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV6	1-238-017-11	s	RES, ADJ CARBON 22K
RV201	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV202	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV203	1-238-012-11	s	RES, ADJ CARBON 1K
RV204	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV205	1-238-015-11	s	RES, ADJ CARBON 4.7K
RV206	1-238-017-11	s	RES, ADJ CARBON 22K
RV207	1-238-016-11	s	RES, ADJ CARBON 10K
RV208	1-238-009-11	s	RES, ADJ CARBON 220
RV209	1-238-013-11	s	RES, ADJ CARBON 2.2K
RV210	1-238-011-11	s	RES, ADJ CARBON 470
RV212	1-238-012-11	s	RES, ADJ CARBON 1K
RV213	1-238-012-11	s	RES, ADJ CARBON 1K
RV214	1-238-017-11	s	RES, ADJ CARBON 22K
RV215	1-238-012-11	s	RES, ADJ CARBON 1K
RV216	1-238-011-11	s	RES, ADJ CARBON 470
RV217	1-238-017-11	s	RES, ADJ CARBON 22K
RV219	1-238-012-11	s	RES, ADJ CARBON 1K
RV221	1-238-012-11	s	RES, ADJ CARBON 1K
S101	1-552-509-00	s	SWITCH, DIP 1-CKT
S201	1-552-509-00	s	SWITCH, DIP 1-CKT
X1	1-567-860-11	s	CRYSTAL, 4.433618MHz
X2	1-567-859-11	s	CRYSTAL, 3.579545MHz
X3	1-579-481-11	s	CRYSTAL 3.835227MHz

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
X4	1-579-480-11	s	CRYSTAL 3.48799MHz
X201	1-577-234-11	s	CRYSTAL 19.6608MHz
X202	1-577-076-11	s	CRYSTAL, 16.000MHz

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6709-714-A	s	HEAD DRUM ASSY, DUH-51A-R
1pc	A-6709-715-A	s	UPPER DRUM ASSY, DUR-51-R
1pc	⚠1-413-248-11	s	SWITCHING REGULATOR, UR-14 (J/UC)
1pc	⚠1-413-249-12	o	SWITCHING REGULATOR, UR-14E (EK)
1pc	⚠1-532-203-00	s	FUSE, TIME LAG 2A 250V (EK)
1pc	⚠1-532-237-00	s	FUSE, TIME LAG 3.15A 250V (EK)
1pc	⚠1-532-286-00	s	FUSE, TIME LAG 2.5A 250V (EK)
1pc	⚠1-532-742-11	s	FUSE 1.6A 125V (J/UC)
1pc	⚠1-532-743-11	s	FUSE 2A 125V (J/UC)
1pc	⚠1-532-744-11	s	FUSE 2.5A 125V (J/UC)
1pc	⚠1-532-745-11	s	FUSE 3.15A 125V (J/UC)
CN1001	1-563-354-31	s	CONNECTOR, BNC FEMALE "VIDEO IN"
CN1002	1-563-354-31	s	CONNECTOR, BNC FEMALE "VIDEO IN (THOUGH OUT)"
CN1003	1-563-354-31	s	CONNECTOR, BNC FEMALE "VIDEO OUT-1"
CN1004	1-563-354-31	s	CONNECTOR, BNC FEMALE "VIDEO OUT-2"
CN1005	1-563-354-31	s	CONNECTOR, BNC FEMALE "VIDEO OUT-3"
CN1013	1-507-854-00	s	JACK, PHONE "HEADPHON"
CN1019	1-507-797-21	s	JACK, 2-PHONE "MICROPHONES CH-1"
CN1020	1-507-797-21	s	JACK, 2-PHONE "MICROPHONES CH-2"
CN1021	1-566-615-11	s	CONNECTOR, RECTASNGLE 33P FEMALE "REMOTE"
CN1022	1-562-900-11	s	JACK, MINI "REMOTE"
CN1051	1-563-989-11	s	JACK, PIN 1P, FEMALE "AUDIO LINE CH-2/R IN"
CN1052	1-563-989-11	s	JACK, PIN 1P, FEMALE "AUDIO LINE CH-1/L IN"
CN1053	1-563-989-11	s	JACK, PIN 1P, FEMALE "AUDIO LINE CH-2/R OUT"
CN1054	1-563-989-11	s	JACK, PIN 1P, FEMALE "AUDIO LINE CH1/L OUT"
CN1101	⚠1-580-375-11	s	INLET, AC 3P MALE "AC IN"
CN1102	1-561-781-11	s	CONNECTOR, BNC FEMALE "REC CONT"
CS1001	1-586-633-00	s	SENOR, CONDENSATION
H1002	8-825-513-20	s	HEAD EPP170-58 "CTL ERASE"
H1003	8-825-578-22	s	HEAD ACE "AUDIO AND CTL"
M1001	8-835-258-02	s	MOTOR, DC BHF-1915B "CAPSTAN"
M1002	8-835-409-01	s	MOTOR, DC FN30-T253N1E "DRUM"
M1003	1-541-376-11	s	MOTOR, DC DNR-4700A "THREADING"
M1006	8-835-179-01	s	MOTOR, DC MCB215 "REEL"
PM1001	1-454-415-21	s	SOLENOID, PLUNGER 12V 9.5/52 OHM "TAKE UP IDLER SOL"
PM1002	1-454-417-41	s	SOLENOID, PLUNGER 12V 12/90 OHM "TAKE UP BRAKE SOL"

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

(FRAME)

Ref. No. or Q'ty	Part No.	SP	Description
PM1004	1-454-415-21	s	SOLENOID, PLUNGER 12V 9.5/52 OHM "SUPPLY IDLER SOL"
PM1005	1-454-417-41	s	SOLENOID, PLUNGER 12V 12/90 OHM "SUPPLY BRAKE SOL"
PM1006	1-454-446-11	s	SOLENOID, PLUNGER 12V 80 OHM "SKEW"
PM1007	1-454-417-41	s	SOLENOID, PLUNGER 12V 12/90 OHM "SEARCH"
PM1008	1-454-416-41	s	SOLENOID, PLUNGER 12V, 7/35 OHM "PINCH"
S2	1-572-870-11	s	SWITCH, SLIDE "SYSTEM SELECT"
S3	1-572-925-11	s	SWITCH, SLIDE "SYSTEM SELECT"
S1001	⚠1-570-117-31	s	SWITCH, ROCKER "AC POWER"
S1002	⚠1-570-173-11	s	SWITCH, SLIDE "TIMER"
T1001	⚠1-450-705-11	s	TRANSFORMER, POWER

15-4. PACKING MATERIAL AND ACCESSORY

Ref. No. or Q'ty	Part No.	SP	Description
1	⚠1-534-754-00	s	CORD, POWER (J)
1	⚠1-556-813-11	s	CORD, POWER (UC)
1	⚠1-590-910-11	s	CORD SET, POWER (EK)
1	3-173-006-01	o	INDIVIDUAL CARTON
1	3-173-007-02	o	BOX, ACCESSORY
1	3-173-009-01	o	CUSHION (UPPER)
1	3-173-010-01	o	CUSHION (LOWER)
1	3-701-630-01	s	BAG, POLYETHYLENE
1	3-753-970-01	s	MANUAL, INSTRUCTION (J)
1	⚠3-753-970-21	s	MANUAL, INSTRUCTION (UC)
1	3-753-970-41	s	MANUAL, INSTRUCTION (EK)
1	3-795-581-21	o	SAFEGUARD (SONY), IMPORTANT (UC)
1	9-910-999-32	s	BAG, PROTECTION

Note: Please see pages 15-21 to 15-22 parts that are not listed in the parts list.

15-5. FIXTURE

OPTIONAL FIXTURE

Part No.	SP	Description
J-6001-820-A	o	Drum Eccentricity Gauge (3)
J-6001-830-A	o	Drum Eccentricity Gauge (2)
J-6001-840-A	o	Drum Eccentricity Gauge (1)
J-6001-930-A	o	Drum Eccentricity Gauge (4)
J-6001-830-A	o	Flatness Plate
J-6026-240-A	o	Adjustment Driver
J-6130-010-A	o	Reel Table Height Check Base Tool
J-6130-020-A	o	Reel Table Height Check Tool
J-6150-140-A	o	Eccentric Screwdriver (6 mm dia.)
J-6153-020-A	o	Eccentric Screwdriver
J-6153-580-A	o	Pinch Lever Adjustment Tool
Y-2031-001-0	o	Cleaning Fluid
2-034-697-00	o	Cleaning Piece
3-702-216-01	o	Back Tension Adjustment Tool
7-732-050-20	o	Tension Scale (50 gm full scale)
7-732-050-30	o	Tension Scale (100 gm full scale)
7-732-050-40	o	Tension Scale (200 gm full scale)
7-732-050-50	o	Tension Scale (500 gm full scale)
8-899-999-53	o	100 mm dia. Torque Measureme Tape
8-960-015-04	o	Alignment Tape, RR5-3SA (J/UC)
8-960-035-61	o	Alignment Tape, RR5-2SC(EK)
9-911-053-00	o	Thickness Gauge

Note: Please see pages 15-21 to 15-22 parts that
are not listed in the parts list.